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**PROJECT MANAGEMENT PLAN FOR THE
HAWAII GEOTHERMAL PROJECT ENVIRONMENTAL IMPACT STATEMENT**

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1. INTRODUCTION

In 1990, Congress appropriated \$5 million (Pub. L. 101-514) for the State of Hawaii to use in Phase 3 of the Hawaii Geothermal Project (HGP). As defined by the State in its 1990 proposal to Congress, the HGP (see Figure 1) would consist of four phases: (1) exploration and testing of the geothermal resource associated with the Kilauea Volcano on the Island of Hawaii (the Big Island), (2) demonstration of deep-water power transmission cable technology in the Alenuihaha Channel between the Big Island and Maui, (3) verification and characterization of the geothermal resource on the Big Island, and (4) construction and operation of commercial geothermal power production facilities on the Big Island, with overland and submarine transmission of electricity from the Big Island to Oahu and possibly other islands (DBED 1990). Because it considered Phase 3 to be research and not project development or construction, Congress indicated that allocation of this funding would not be considered a major federal action under NEPA and would not require an EIS. However, because the project is highly visible, somewhat controversial, and involves a particularly sensitive environment in Hawaii, Congress directed in 1991 (House Resolution 1281) that "...the Secretary of Energy shall use such sums as are necessary from amounts previously provided to the State of Hawaii for geothermal resource verification and characterization to conduct the necessary environmental assessments and/or environmental impact statement (EIS) for the geothermal initiative to proceed." In addition, the U.S. District Court of Hawaii (Civil No. 90-00407, June 25, 1991) ruled that the federal government must prepare an EIS for Phases 3 and 4 before any further disbursement of funds was made to the State for the HGP.

In compliance with the National Environmental Policy Act (NEPA), the U.S. Department of Energy (DOE) is preparing an EIS to identify and evaluate the potential environmental impacts associated with Phases 3 and 4 of the proposed Hawaii Geothermal Project (HGP). In accordance with DOE NEPA Implementing Procedures (codified at 10 CFR Part 1021), DOE has published an *Implementation Plan for the Hawaii Geothermal Project Environmental Impact Statement* (IP) in April 1993. The IP summarizes the results of the EIS scoping process, which included public scoping meetings, and describes the approach to be taken in preparing the EIS. The IP also identifies the environmental areas to be evaluated in the EIS and the procedures to be followed during EIS preparation.

The decision being considered by DOE is whether to partially fund Phase 3 of the HGP. Although the decision about DOE funding concerns Phase 3 only, the EIS will also evaluate the activities that would be conducted during both Phases 3 and 4 of the HGP because of the Congressional directive and the U.S. District Court of Hawaii ruling. However, the DOE Record

ORNL DWG 92M 12842R

2

Not to scale

Figure 1. Proposed location of the Hawaii Geothermal Project and cable. Source: Hawaiian Electric Company, Inc., Request for Proposal for the Geothermal/Inter-Island Transmission Project, Hawaiian Electric Company, Inc., Honolulu, Hawaii, May 1989.

of Decision will be rendered only with regard to the disbursement of federal funds to the State to partially fund Phase 3.

This Project Management Plan (PMP) briefly summarizes background information on the HGP and describes the project management structure, work breakdown structure, baseline budget and schedule, and reporting procedures that have been established for the project. The PMP does not address in detail the work that has been completed during the scoping process and preparation of the IP. The PMP has been developed to address the tasks required in preparing the Draft Environmental Impact Statement (DEIS), the public comment period, and the Final Environmental Impact Statement (FEIS).

1.1 BACKGROUND

The Hawaii Geothermal Project (HGP) is the culmination of research and development efforts begun in the 1970s to explore the feasibility of using Hawaii's indigenous geothermal resource for the production of electricity. Geothermal exploration began in Hawaii in 1972 with funding from the National Science Foundation (NSF), and a high-potential geothermal resource site was identified on the east rift of the Kilauea Volcano. Subsequent exploratory drilling between December 1975 and April 1976 resulted in a productive geothermal well at a depth of approximately 6450 ft. In 1976, the Energy Research and Development Administration (a predecessor to DOE) funded the testing of this geothermal well, which was designated as the HGP-A well. In 1979, DOE funded the development of a 3-MW demonstration power plant at the HGP-A site. In 1986, the HGP-A facilities were transferred by DOE to the State of Hawaii to be used for further research. The State has referred to this early exploration and testing of the Big Island geothermal resource as Phase 1 of the HGP.

In Phase 2 of the HGP, DOE provided the State with funds for the Hawaii Deep Water Cable Program (HDWC), which was initiated in 1981 and completed in 1991. The goal of the HDWC was to determine the technical feasibility of constructing and operating a deep-water submarine power transmission cable that would serve the Island of Oahu and would operate for a minimum of 30 years. The project demonstrated the feasibility of deploying and retrieving the deep-water power transmission cable.

As proposed, Phase 3 of the HGP (verification and characterization of the geothermal resource) would include well drilling, logging of cores from holes, measuring temperatures, collecting and analyzing geothermal fluid samples, and making downhole geophysical and geochemical measurements and flow-testing. State and private industry experts estimate that at least 25 commercial-scale exploratory wells would need to be drilled to verify the generating potential of the resource on the Big Island.

Phase 4 of the HGP would involve the construction and operation of geothermal power production facilities on the Big Island, with overland and submarine transmission of electricity from the Big Island to Oahu and possibly other islands. Forecasts based on resource characterization to date indicate that between 10 and 20 separate geothermal power plants of 25 to 50 MW(e) (net) each could be developed. Based on the physical characteristics of the resource and contemporary geothermal energy development practice, the State estimated that about 125 production wells and 30 injection wells may be needed to produce 500 MW(e) (net).¹ The plants most likely would be connected by a network of roads, piping, and overland transmission lines. In addition, overland and underwater transmission lines (± 300 kV) would be constructed to distribute power to Oahu and possibly other islands (see Figure 1).

1.2 PURPOSE OF THE PROJECT MANAGEMENT PLAN

The PMP is intended to serve as the basis for managing all aspects of HGP EIS preparation. As with any plan, the PMP is a "living document" that will be revised to reflect changes in management, tasks, schedule, and budget, as necessary. The PMP covers four major elements of project management for the HGP EIS. The first, *Project Management Structure*, identifies each of the organizations involved with EIS preparation and describes their respective roles. The second, *Work Breakdown Structure (WBS)*, identifies the individual tasks to be performed by the technical analysts, administrative support staff, and management of each organization during EIS preparation, including interrelationships, schedules, and individual task costs and durations. The WBS also identifies deliverables, milestones, and junctures at which coordination among the organizations involved is required. *Schedule and Budget*, the third major element of the PMP, describes the initial schedule and budget projections made for the HGP EIS and provides revised schedules and budgets as necessary. Schedule and Budget is the plan element that will likely be most subject to revision during the life of the project. The fourth element, *Project Reporting*, describes the formal process of monthly and quarterly reporting on technical progress and financial status for organizations involved in EIS preparation. Each of these four major elements is detailed in the following sections of the PMP.

¹ The estimate of production and injection wells made by the State is based on net delivery capacity rather than gross production capacity. As many as 180 production wells and 43 injection wells may be required to produce sufficient power (gross) to deliver 500 MW(e)(net) of electricity to Oahu and 50 MW(e)(net) of electricity to Maui.

2. PROJECT MANAGEMENT STRUCTURE

This section describes the project management structure that has been established for preparing the HGP EIS (see Figure 2). For this project, there are two primary objectives of management structure: 1) project direction, oversight, and approval authority and 2) technical support and review.

2.1 PROJECT DIRECTION, OVERSIGHT, AND APPROVAL AUTHORITY

Various organizations within DOE have primary responsibility for project direction, oversight, and approval authority. The following sections discuss DOE's organizational structure for the HGP EIS and the responsibilities of each DOE organization involved.

2.1.1 DOE Headquarters

The U.S. District Court of Hawaii ruling (Civil No. 90-00407, June 25, 1991) directed the federal government to prepare an EIS on the HGP. The responsibility for preparing the EIS resides with the Office of Energy Efficiency and Renewable Energy (EE).

2.1.1.1 Office for Energy Efficiency and Renewable Energy

Within the Office for Energy Efficiency and Renewable Energy, the Office of the Deputy Assistant Secretary for Utility Technologies is responsible for the overall program management and direction (including the allocation of funds), oversight, and approval for the HGP EIS. In this capacity, the office is ultimately responsible for the quality of the EIS and for ensuring that it meets all legal requirements.

2.1.1.2 Office of Environment, Safety and Health

DOE's Office of Environment, Safety and Health (EH) provides oversight in reviewing and approving the HGP EIS. EH reviews announcements and documents prepared during the NEPA process to ensure they meet requirements of the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508) and DOE's NEPA Regulations (codified at 10 CFR 1021). EIS-related announcements are issued by EH-1, and the Office of NEPA Oversight (EH-25) reviews NEPA

*County of Hawaii, County of Maui, NMFS, NPS, State of Hawaii, COE, FWS, USGS

Figure 2. Hawaii Geothermal Project EIS Management Structure

announcements and documents and advises EE on procedures for complying with DOE and CEQ regulations for implementing NEPA. EH-25 also provides assistance to EE in conducting the scoping process.

2.1.1.3 Office of General Counsel

DOE's Office of General Counsel (GC) is responsible for providing legal counsel to EH-25 to ensure that all aspects of the EIS process comply with applicable federal and state legislation and court orders. Thus, GC has oversight and approval authority in terms of legal questions that might arise during EIS preparation.

2.1.2 DOE Oak Ridge Operations

DOE's Oak Ridge Operations (DOE-ORO), located in Oak Ridge, Tennessee, is responsible for day-to-day program and project direction, oversight, and approval authority on the HGP EIS. DOE-ORO acts as EE's representative in implementing EIS tasks, schedules, and budgets reviewed and approved by EE. DOE-ORO, at EE's direction, negotiates and implements interagency agreements for technical support studies. DOE-ORO also provides oversight of the principal EIS contractor (Oak Ridge National Laboratory) and the technical efforts and reviews conducted by cooperating agencies (CAs) during EIS preparation (see Sections 2.2.1 and 2.2.2). DOE-ORO initiates requests for data and information from the CAs and transmits information to the EIS preparers from the CAs, other federal, state and local agencies, and interested individuals and organizations. DOE-ORO also reviews project documents before they are submitted to EE.

2.1.3 DOE Approval Authorities

The HGP EIS is a DOE document and must be approved by the appropriate program and oversight offices. DOE-ORO will review and revise as necessary all draft documents and input prepared for the EIS task. Draft materials will be forwarded to DOE Headquarters after they are approved by the DOE-ORO technical project and program managers. DOE Headquarters review and approval will involve the Deputy Assistant Secretary for Utility Technologies (EE-10), EH-25, and GC. The publically available draft and final EIS will be issued by the appropriate authority at DOE Headquarters. Approvals for changes in budgets and schedules are discussed in Section 5.

2.2 TECHNICAL SUPPORT AND REVIEW

DOE has given several organizations and agencies the responsibility for providing technical support and review during HGP EIS preparation (see Figure 2). The following sections discuss the responsibilities of each of these organizations and agencies.

2.2.1 Oak Ridge National Laboratory

Oak Ridge National Laboratory (ORNL), a DOE National Laboratory managed by Martin Marietta Energy Systems, Inc., and located in Oak Ridge, Tennessee, is the principal contractor on the HGP EIS. ORNL has primary responsibility for collecting existing information, conducting the necessary environmental analyses, and preparing and reviewing project documents and deliverables. ORNL is also responsible for the direction, oversight, and approval of its subcontractors who are directly involved in EIS preparation. These responsibilities are shared among a number of separate organizations at ORNL. Figure 3 depicts ORNL's project management structure.

2.2.1.1 The ORNL Energy Efficiency and Renewable Energy Program

The ORNL Energy Efficiency and Renewable Energy Program is the organization through which HGP EIS funds are received from DOE. This program office is responsible for project oversight in terms of accounting and budgeting and provides guidance and assistance to ORNL organizations and staff as necessary.

2.2.1.2 Energy Division

The Environmental Analysis and Assessment Section (EAAS) of ORNL's Energy Division has the lead responsibility for ORNL project management and overall preparation of the HGP EIS. The EAAS is responsible for day-to-day project direction, oversight, and approval at ORNL, and for managing subcontractors involved in EIS preparation. EAAS staff conduct or direct environmental analyses in a number of EIS technical areas: meteorology/air quality/emissions, surface and groundwater resources, geologic issues, noise, land use, socioeconomics, cultural resources/Native Hawaiian concerns, aesthetic resources, and alternatives. Thus, the EAAS is ultimately responsible for reviewing technical support documents provided by cooperating agencies and subcontractors and for preparing and reviewing project documents and deliverables at ORNL. In addition, EAAS staff provide most of the administrative and clerical support necessary for ORNL's HGP EIS project management and document preparation. Other Energy

*University of Tennessee Subcontractors on Staff at ORNL

Figure 3. ORNL project management structure

Division staff will provide support in evaluating engineering aspects of the project description and source terms and in assessing the impacts of electromagnetic fields.

2.2.1.3 Environmental Sciences Division

ORNL's Environmental Sciences Division (ESD) provides technical support in evaluating impacts on ecological resources for the HGP EIS. ESD staff are primarily responsible for conducting or directing the environmental analyses of terrestrial, aquatic, and marine ecological resources. ESD staff are developing subcontracts for assessing impacts to the marine environment. ESD staff are also responsible for reviewing technical support documents provided by cooperating agencies and subcontractors, integrating descriptions and analyses provided by cooperating agencies and subcontractors into the EIS, and assisting in the preparation and review of project documents and deliverables at ORNL.

2.2.1.4 Health and Safety Research Division

The Health and Safety Research Division (HASRD) at ORNL is primarily responsible for conducting or directing the environmental analyses of health and safety issues for the HGP EIS. HASRD staff are also responsible for reviewing technical support documents provided by subcontractors and for assisting in the preparation and review of project documents and deliverables at ORNL.

2.2.1.5 Subcontractors

ORNL has an existing subcontract with the University of Tennessee to provide assistance in EIS work in the areas of socioeconomics and cultural resources. Expertise in these areas will be used in preparing the HGP EIS. In addition, ORNL will implement subcontracts with International Archaeological Research Institute, Inc., and Community Action Network Developing Options to conduct archaeological and ethnographic surveys. ORNL plans to develop subcontracts with experts at Scripps Oceanographic Institute to assist in the assessment of potential impacts from electromagnetic fields created by the proposed submarine cable and with marine biologists or oceanographers at the University of Hawaii on potential impacts on marine resources from construction and operation. Additional subcontracts to provide local or special expertise for specific topical areas may be developed as the need is identified and as budget constraints will allow. Topical areas for which local subcontract support may be solicited include health and safety, socioeconomics, and geothermal development.

2.2.2 Cooperating Agencies

During scoping, DOE invited other agencies to participate in HGP EIS preparation as cooperating agencies. Cooperating agency roles and responsibilities in EIS preparation, as defined in CEQ regulations (40 CFR Part 1501.6), may include participating in the scoping process, technical support studies, preparing environmental analyses, providing technical reviews, and/or lending staff support. Cooperating agencies for the HGP EIS are asked to provide formal reviews of draft documents before they are made available to the public. Consultations with cooperating agencies are undertaken as required by pertinent laws, regulations, and executive orders. The HGP EIS cooperating agencies and their responsibilities are discussed in the following sections.

2.2.2.1 U.S. Army Corps of Engineers

The Interagency Agreement with the U.S. Army Corps of Engineers (Corps) to conduct an initial reconnaissance survey for wetlands in potential development areas was signed on May 5, 1993 (Attachment 1). Funding is \$78,000. The initial survey will indicate the applicability of the 1987 Wetlands Delineation Manual to the Hawaiian environment. If results indicate that more detailed surveys are feasible, the Agreement will be modified to provide additional funding. If not, the Corps has indicated that it would require project-by-project wetlands assessment for geothermal development.

2.2.2.2 U.S. Geological Survey

The Interagency Agreement with the U.S. Geological Survey (USGS) was signed on April 19, 1993 (Attachment 2). The agreement provides \$496,710 for tasks that include: a literature search and technical review; geothermal fluids characterization; quantification of volcanic gas emissions; characterization of and impact on local ground water resources; analysis of volcanic activity and deformation hazard analysis; seismic hazard analysis; and analysis of natural marine hazards. All USGS deliverables will be received by the end of January 1994. The present Agreement will be modified to delete Task 3F, which erroneously appears in the Agreement in the text describing various tasks, but which was not funded by mutual agreement of DOE and USGS.

2.2.2.3 U.S. Fish and Wildlife Service

A phased Interagency Agreement was agreed upon with the U.S. Fish and Wildlife Service (FWS); the first phase, which was signed on February 22, 1993, provided \$207,000 for a forest bird survey in potential geothermal development areas. The agreement was modified in June 1993 to 1) add four new tasks to survey vegetation, waterbirds, endangered species in development areas, and to conduct a literature review; 2) to add a requirement for monthly cost reporting; and 3) to add a requirement for mid-point technical progress reports. (Copies of the initial and modified agreements are provided in Attachment 3.) Total funding to date for the FWS surveys is \$631,000. An additional increment of funding (up to \$69,000) to conduct a survey for invertebrates in the development areas is currently being considered. The scope of such a survey and the costs are in negotiation. All FWS deliverables will be received by the end of January 1994.

2.2.2.4 National Park Service

The National Park Service will provide information and technical document review, particularly on topics pertaining to the HGP's potential impacts on the Hawaii Volcanoes National Park.

2.2.2.5 National Marine Fisheries Service

The National Marine Fisheries Service will provide information and technical document review, particularly on topics pertaining to the HGP's potential impacts on marine ecological resources.

2.2.2.6 State of Hawaii

The State of Hawaii will provide information and technical document review on all topics pertaining to the HGP's potential impacts.

2.2.2.7 County of Hawaii

The County of Hawaii will provide information and technical document review on all topics pertaining to the HGP's potential impacts on the Big Island.

2.2.2.8 County of Maui

The County of Maui will provide information and technical document review on all topics pertaining to the HGP's potential impacts on the islands of Maui, Molokai, and Lanai.

2.2.3 Other Federal Agencies and Non-Government Organizations

While preparing the EIS, DOE and ORNL expect to contact and conduct reviews with other federal agencies and Native Hawaiian organizations. In particular, EIS preparers will contact the U.S. Environmental Protection Agency, U.S. Navy, U.S. Coast Guard, Soil Conservation Service, U.S. Department of the Interior, U.S. Department of Transportation, U.S. Department of Agriculture, U.S. Department of Health and Human Services, the Federal Emergency Management Agency, and the City and County of Honolulu.

3. WORK BREAKDOWN STRUCTURE

This section of the PMP describes the WBS developed for preparing the EIS. The WBS identifies the tasks to be performed during EIS preparation in terms of overall schedule and individual task costs and durations. Deliverables, milestones, and junctures at which coordination among the organizations involved is required are also identified. The WBS has been developed, and will be revised as needed throughout the project, using the **TIMELINE^R** computer software package as a project management tool. A baseline budget and schedule has been defined against which progress will be compared.

Figure 4 shows the five major task areas that are addressed in this PMP in a work tree format. As noted earlier, work completed before January 1, 1993, is noted in the WBS but is not discussed in detail in this PMP. The five task areas are 1) conducting public scoping and preparing an EIS Implementation Plan, 2) preparing and publishing the Draft EIS (DEIS), 3) receiving verbal and written public comment at public hearings and the public comment period, 4) preparing and publishing the Final EIS (FEIS), and 5) project management. These steps are described briefly in the following sections.

Figure 4. Major task areas addressed in the Project Management Plan

3.1 PUBLIC SCOPING AND PREPARATION OF THE EIS IMPLEMENTATION PLAN

As shown in Figure 5, DOE published an Advance Notice of Intent (ANOI) to prepare the HGP EIS on September 3, 1991. The ANOI announced the initiation of planning and scoping for the HGP EIS and solicited public input on the scope and content of the EIS. A Notice of Intent (NOI) was published on February 14, 1992, announcing DOE's intent to prepare the EIS. Extensive efforts were made during the scoping process to obtain agency and public comment by holding a series of information exchange and public scoping meetings. The IP was reviewed a number of times by cooperating agencies, an extensive mailing list was developed to be used to distribute information to agencies and the public, and a data base and library were established for use in preparing the EIS. The scoping process is described in more detail in the IP. In addition to describing the results of the EIS scoping process, the IP identifies issues that were raised during scoping and discusses how these issues will be addressed in the EIS. A working draft of the IP was developed and distributed to cooperating agencies for their review in July 1992. The IP was approved by DOE Headquarters and made available to the public in April 1993. For purposes of this PMP, the scoping process and the IP are considered to have been completed.

3.2 PREPARATION OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The DEIS will address the issues and concerns identified during the scoping process as described in the IP. As shown in Figure 6, the major steps include developing existing and new information, preparing a written description of the project and its alternatives that will serve as a basis for assessing impacts to specific resources, writing a concise description of the environment that could be affected by the proposed action and alternatives, preparing an assessment of the environmental impacts from the proposed action and alternatives, identifying mitigation measures to avoid or minimize significant impacts, preparing a working draft of the DEIS for internal and ORO review prior to completion of field studies on cultural resources, submitting a preliminary DEIS for review by DOE and the cooperating agencies, and finalizing the DEIS in response to comments received. ORNL will deliver a camera-ready DEIS to DOE for publication. Upon final approval, DOE will print the DEIS, file it with EPA, and distribute it to individuals and organizations who have requested copies.

Figure 5. Task areas associated with scoping, including preparation of the EIS Implementation Plan

Figure 6. Task areas associated with preparation of the Draft Environmental Impact Statement

3.3 PUBLIC COMMENT PERIOD

The public comment period for the DEIS will begin upon publication of the Notice of Availability in the *Federal Register*. Although CEQ regulations require a minimum of a 45-day comment period, this PMP anticipates a minimum of 60 days, and possibly as much as 90 days due to the broad and controversial nature of the HGP. Figure 7 shows that major activities during this period include conducting public hearings on the DEIS, receiving oral and written comments during the hearings, and receiving written comments until the close of the public comment period. Conducting the public hearings will involve determining the number, location, and dates of the hearings; making logistical arrangements for the hearings; conducting the public hearings; and recording and receiving oral and written comments.

3.4 PREPARATION OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT

Figure 8 shows that the initial activities associated with preparation of the FEIS are the organization and review of public and agency comments on the DEIS. After this review is completed, ORNL, and DOE as necessary, will prepare responses and revisions to the DEIS. ORNL will provide a preliminary draft of the FEIS for DOE and cooperating agencies' review. Upon receipt of comments on the preliminary draft FEIS, ORNL will make necessary revisions and provide a camera-ready FEIS for DOE approval and publication. Upon approval, DOE will print the FEIS, file it with the Environmental Protection Agency, and distribute it to individuals and organizations who have requested copies.

3.5 PROJECT MANAGEMENT

Figure 9 shows that the major components of the project management task involve organization, development of a project management plan, and reporting and monitoring of technical progress and costs. Organization refers to the identification and procurement of expertise needed to prepare the EIS and the establishment of working relationships. This draft Project Management Plan is the product of the second activity, and it addresses reporting and monitoring of technical progress and costs in Section 5.

Figure 7. Task areas associated with the public comment period on the Draft Environmental Impact Statement

Figure 8. Task areas associated with preparation of the Final Environmental Impact Statement

Figure 9. Task areas associated with project management

4. SCHEDULE AND BUDGET

This section discusses the HGP EIS schedule and budget based on information presented in the Work Breakdown Structure in Section 3. This is the PMP element that is most likely to change because of uncertainties in staff availability, funding limitations, and unanticipated events (e.g., comments requiring new analysis).

4.1 ORIGINAL SCHEDULE AND BUDGET PROJECTIONS

In 1990, Congress appropriated \$5 million (Pub. L. 101-514) for the State's use in Phase 3 of the HGP. Because Congress considered Phase 3 to be research and not project development or construction, the legislation indicated that this funding would not be considered a major federal action under NEPA and would not require an EIS. However, because the project is highly visible, controversial, and involves a particularly sensitive environment in Hawaii, Congress directed in 1991 (House Resolution 1281) that "...the Secretary of Energy shall use such sums as are necessary from amounts previously provided to the State of Hawaii for geothermal resource verification and characterization to conduct the necessary environmental assessments and/or environmental impact statement (EIS) for the geothermal initiative to proceed."

In 1991, the U.S. District Court of Hawaii (Civil No. 90-00407, June 25, 1991) ruled that the federal government must prepare an EIS for Phases 3 and 4 before any further disbursement of funds was made to the State for the HGP. The \$5 million appropriated by Congress in 1990 was therefore considered the upper limit for funding preparation of the EIS and related studies. In August 1991, ORNL estimated the cost of its proposed work associated with preparing the EIS to be \$1.7 million based on a preliminary understanding of the project and previous experience with preparing EISs. DOE authorized this amount in September 1991. In addition, DOE initiated discussions with three cooperating agencies to provide support studies for the EIS. These studies were initially estimated to cost approximately \$1.9 million.

4.2 BASELINE SCHEDULE AND BUDGET

Figure 10 shows the major components of the current schedule in a Gantt chart. This schedule indicates that work will continue into FY 1995. Because the scoping process and preparation of the IP was greatly extended from original projections and because the issues identified during scoping required additional effort, ORNL has submitted a new FWP to DOE

Schedule Name : HGP EIS
 Responsible :
 As-of Date : 25-Mar-93

Schedule File : BASELINE

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■ Detail Task ■ Summary Task Baseline
 ■ (Progress) ■ (Progress) >>> Conflict
 ■ (Slack) ■ (Slack) ■ Resource delay
 Progress shows Percent Achieved on Actual
 Scale: 2 weeks per character

TIME LINE Gantt Chart Report, Strip 1

Figure 10. Gantt chart showing major tasks and schedule

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that estimates that an additional \$1.934 million would be needed to complete the EIS. The total estimated costs for ORNL is \$3.635 million. Revised estimated costs for cooperating agencies are \$1.504 million and for DOE are \$0.252 million. The total estimated project cost for activities managed by ORO is \$5.391 million. Table 1 summarizes these cost estimates.

ORNL has developed baseline cost projections for the remainder of the project. Table 2 shows these cost projections for ORNL and its subcontractors for FY 1993-1995 and the report format that will be used in monthly reports. This baseline has been developed to allow tracking of actual versus projected costs. Each month, actual costs will be reported in comparison with projected costs, and the variance will be computed. This will enable ORNL and DOE staff to evaluate the status of funding and identify any problems in sufficient time to deal with them effectively.

Baseline cost estimates have been developed in conjunction with a schedule that anticipates publication of the FEIS in February 1995. Figure 10 and Table 3 indicate the baseline schedule for preparation of the EIS in relation to major tasks and milestones. Field studies that are being undertaken by cooperating agencies and subcontractors are critical path tasks in preparing the DEIS. Cultural resource studies have been delayed awaiting funding authorization and will require approximately seven months for completion. Studies by the U.S. Fish and Wildlife Service and the U.S. Geological Survey have been estimated to require up to a year for completion. An initial working draft of the DEIS without a complete assessment of cultural resources and possibly certain ecological resources will be assembled in October 1993 for internal review to be followed by DOE-ORO review. A preliminary DEIS will be delivered to DOE and cooperating agencies for review in February 1994. DOE has committed to coordinating its review efforts and keeping the review period as short as possible.

5. PROJECT REPORTING AND MONITORING

This section describes the process of reporting technical progress and costs to DOE on a monthly basis. It also describes plans for periodic (quarterly or other appropriate time) briefings of DOE Headquarters staff. Finally it discusses procedures and approvals to be used in making changes to schedules, budgets, and other elements of the project plan.

Table 1. Budget estimates and cost projections for funds managed by ORO for the HGP-EIS (in thousands of dollars)

ORNL COSTS	(\$000)
FY91-92 costs	\$937
Remaining	
Staff	\$1,008
Travel	\$30
Editing	\$50
Materials & services	\$138
Alternatives/marine	\$400
Subcontracts	\$443
Overhead	\$629
Subtotal	\$2,698
ORNL TOTAL	\$3,635
DOE COSTS	
Cooperating Agencies*	
USFWS	\$707
USGS	\$497
USACOE	\$300
Subtotal	\$1,504
Other DOE	
FY91-92 costs	\$212
Remaining	
Consultants	\$0
Travel-OR	\$40
Travel-HQ	\$0
Subtotal	\$252
DOE TOTAL	\$1,756
SUBTOTAL (ORNL & DOE)	\$5,391
CONTINGENCY	\$0
HGP-EIS TOTAL	\$5,391

* These estimates are dependent on negotiations between DOE and the cooperating agencies

Table 2. Baseline Cost Projections and Cost Report (costs in thousands of dollars)

Date	10/92	11/92	12/92	01/93	02/93	03/93	04/93	05/93	06/93	07/93	08/93	09/93	Total
Planned Monthly Cost	\$90	\$104	\$77	\$44	\$53	\$75	\$115	\$125	\$191	\$201	\$201	\$201	\$1,477
Cumulative Planned	\$90	\$194	\$271	\$315	\$368	\$443	\$558	\$683	\$874	\$1075	\$1276	\$1477	
Actual Monthly Cost	\$90	\$104	\$77	\$44	\$53	\$75	\$61	\$68					
Cumulative Actual	\$90	\$194	\$271	\$315	\$368	\$443	\$504	\$572					
Variance	0	0	0	0	0	0	-\$54	-\$111					
Date	10/93	11/93	12/93	01/94	02/94	03/94	04/94	05/94	06/94	07/94	08/94	09/94	Total
Planned Monthly Cost	\$178	\$100	\$105	\$114	\$45	\$55	\$50	\$75	\$50	\$75	\$75	\$75	\$997
Cumulative Planned	\$1655	\$1755	\$1860	\$1974	\$2019	\$2074	\$2124	\$2199	\$2249	\$2324	\$2399	\$2474	
Actual Monthly Cost													
Cumulative Actual													
Variance													
Date	10/94	11/94	12/94	01/95	02/95	03/95	04/95	05/95	06/95	07/95	08/95	09/95	Total
Planned Monthly Cost	\$75	\$45	\$50	\$50	\$4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$224
Cumulative Planned	\$2549	\$2594	\$2644	\$2694	\$2698	\$2698	\$2698	\$2698	\$2698	\$2698	\$2698	\$2698	
Actual Monthly Cost													
Cumulative Actual													
Variance													

* For purposes of this project a negative variance indicates actual cost is less than planned and a positive variance means the actual cost exceeds the planned cost.

Table 3. Milestones and Schedule

Finalize the EIS Implementation Plan	04/30/93
Submit EIS Project Management Plan to ORO	04/02/93
Submit EIS Project Management Plan to EE	04/30/93
Submit Working Draft "Project Description" to ORO	04/12/93
Submit Working Draft Sections of "Affected Environment" to ORO	07/23-8/31/93
Receive Final Data from Army Corps of Engineers Studies	09/30/93
Submit Working Draft "PDEIS" to ORO	10/29/93
Receive Final Data from Cultural Resources Survey	12/31/93
Receive Final Data from U.S. Geological Survey Studies	12/31/93
Receive Final Data from U.S. Fish and Wildlife Service Studies	01/31/94
Submit PDEIS to EE and Cooperating Agencies	02/11/94
Submit DEIS to ORO/EE	04/06/94
Publish DEIS	05/03/94
End of Public Comment Period	07/29/94
Submit PFEIS to EE and Cooperating Agencies	10/31/94
Submit FEIS to EE	01/27/95
Publish FEIS	02/17/95

5.1 MONTHLY PROGRESS AND FINANCIAL REPORTS

Each month, ORNL will continue to submit a written report describing technical progress; discussing important communications, visitors and travel; identifying problem areas; and presenting cost information for the previous month to DOE-ORO as soon as cost information is available each month (usually around the 10th of the month). Subcontractors to ORNL (other than University of Tennessee subcontractors²) will submit a written report to ORNL containing the same information on their efforts each month. It should be noted that the University of Tennessee and other subcontractors bill ORNL at the end of each month. Therefore, there is frequently a delay in receiving the actual cost for subcontractor effort during the report period. Monthly reports will, therefore, reflect subcontractor costs that have been paid by the end of the previous month. ORNL will incorporate the contents of subcontractor reports into its monthly report to DOE-ORO, as appropriate. DOE-ORO will review ORNL's reports and provide copies to DOE-EE as appropriate. ORNL will provide additional information or respond to comments from DOE as needed.

5.2 DOE-ORO MONTHLY REVIEW MEETINGS

The HGP EIS project manager from ORNL will meet with DOE-ORO's program and project managers as the need arises to discuss technical progress, financial status, and other project-related issues. It is anticipated that there will be a meeting during the third week of each month so that participants can discuss the contents of ORNL's monthly progress report.

5.3 DOE-EE REVIEW MEETINGS

The HGP EIS project managers from ORNL and DOE-ORO will meet with DOE-EE periodically to discuss technical progress, financial status, and other project-related issues. These meetings will be scheduled around important milestones in the project schedule or as needed.

5.4 PROCEDURES FOR CHANGING BUDGET AND SCHEDULE

As the project proceeds, ORNL project management and DOE will monitor technical progress and project costs on a monthly basis as described above. If the results of this monitoring indicate that changes are needed to either the schedule or the budget, a meeting or discussion will

² University of Tennessee subcontractors work at ORNL as extended staff. Their progress will be reported as part of ORNL's progress, and their costs will be included in the monthly costs.

be held and appropriate approvals will be obtained before implementing the changes. Changes in the schedule for major deliverables or in costs of overall tasks (e.g., the scoping process, public comment period) at the first and second levels of the WBS shown in Figure 4 require approval from EE. Significant changes in the schedule for major deliverables or involving the allocation of costs for tasks shown at the third level of the WBS shown in Figure 5 require approval of DOE-ORO. Changes in the schedules and budget allocations for specific tasks at level 4 or lower in the WBS (not displayed in this PMP) are at the discretion of ORNL. Early identification of problems involving schedules and budgets is essential.

The following information is for internal use only and should not be distributed outside the organization. It contains sensitive information that could be used to the detriment of the organization if it were made public. This information is provided for your information and should be handled accordingly.

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ATTACHMENT 1

**INTERAGENCY AGREEMENT WITH THE
U.S. ARMY CORPS OF ENGINEERS**

Internal Use Only

Revision 1 (June 1993)

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U.S. DEPARTMENT OF ENERGY
INTERAGENCY AGREEMENT FACE PAGE

FINDS-OUT INTERAGENCY AGREEMENT (IA)

uant to authority of Economy Act of 1932 as amended
(31 U.S.C. 1535); PL 95-91;

Other:

2. TYPE OF ACTION:

☒ New Award ☐ Modification ☐ Extension ☐ Other

3. PROJECT TITLE/DESCRIPTION:

Survey of Wetlands in Hawaii for the Hawaii Geothermal Project Environmental Impact Statement

4. AGREEMENT PERIOD (month, day, year)

FROM: May 1, 1993 TO: September 30, 1994

5. FINANCIAL

a. Accounting and Appropriation Data:

89X0224.91
OR-34-91
250

b. Funding sources

DOE This Action (AM 10 01) \$ 78,000.00
Agency \$

Total Funding \$ 78,000.00

c. Method of Payment:

☐ Advance ☒ Reimbursement ☐ Progress

d. Amount obligated this action: \$ 78,000.00

e. Invoices, if any, submit to:

Department of Energy
P.O. Box 2001
Oak Ridge, Tennessee 37831-8613
ATTN: M. W. Henderson, ER-113

f. Voucher Form to be used:

Standard Form 1080 and cite
thereon DE-AI05-930R22109

1. IDENTIFICATION

a. DOE IA No.: DE-AI05-930R22109
b. Other agency IA No.:
c. Modification No.: A000
d. Task order No.:
e. PR No.: 05930R22109.000

6. DOE PROGRAM OFFICER

Name: Judith C. Stroud
Office of Asst. Mgr. for Energy
Address: Research and Development
U.S. Department of Energy
P. O. Box 2001
Oak Ridge, Tennessee 37831-8600

Telephone Number:
(615) 576-1836

7. PERFORMING AGENCY

a. Name: U.S. Army Corps of Engineers
Honolulu District Engineer
b. Address: Building 2301
Fort Shafter, Hawaii 96858-5440

Attention: Lieutenant Colonel
James T. Muratsuchi

c. Program Director

Name: Michael T. Lee, Chief
Operations Division

Address: U.S. Army Engineer District,
Honolulu
Fort Shafter, Hawaii 96858-5440

Telephone Number:
(808) 438-9258

8. ISSUING AGENCY:

Department of Energy (DOE)
Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8613

9. PERFORMING AGENCY ACCEPTANCE:

(signature)

5 MAY 93
(date)

Name (typewritten): LTC James T. Muratsuchi

Title (typewritten): Honolulu District Engineer

Telephone: (808)438-1091

10. DOE CONTRACTING OFFICER:

(signature)

4/1/93
(date)

Name (typewritten): William W. Wistrom

Title (typewritten): Contracting Officer

Interagency Agreement No. DE-AI05-93OR22109
Performing Agency: U.S. Army Corps of Engineers

I. PURPOSE

The U.S. Department of Energy (DOE) has a need for the technical support and assistance of the U.S. Army Corps of Engineers (COE) in delineating wetlands in the proposed geothermal resource subzones (GRS) of Puna, Hawaii, and along proposed geothermal energy transmission corridors. The information will be used in the preparation of an Environmental Impact Statement (EIS) for the proposed Hawaii Geothermal Project (HGP). The purpose of the COE tasks described below is to achieve timely delivery of the most technically reliable and recent wetland information pertinent to the HGP so that accurate analyses of environmental impact can be performed by DOE or its designated representatives.

In the interest of minimizing costs and reducing uncertainties, the COE shall divide the delineation and identification of wetlands into two phases. The first phase will involve a reconnaissance field study to determine the feasibility and strategies of a wetland delineation. The second phase, if approved by DOE, will involve detailed testing to develop maps showing the delineated wetlands within the geothermal resource subzones and the energy transmission corridors.

II. SCOPE OF WORK

The reconnaissance field study shall be performed by a team of scientists headed by the COE, Honolulu Engineer District (HED). Ground and helicopter surveys shall be used to determine the working conditions and form the basis for establishing (1) a sampling protocol for adapting the Corps 1987 Wetland Delineation Manual (WDM); (2) a method or combination of methods for delineating wetlands; (3) the viability of using global positioning units and other scientific instruments; and (4) a list of potential problems and how to address them.

III. COST

DOE hereby obligates \$78,000 through September 30, 1993, in support of the reconnaissance field study. Depending upon the results of the

reconnaissance field study and availability of additional funding, DOE will consider funding further surveys up to a maximum of \$300,000 on a task-by-task basis in support of the wetland delineation.

IV. DELIVERABLES/REPORTS

Based on the reconnaissance field study, the COE shall prepare a report on the feasibility of delineating wetlands in the HGP and make recommendations. The COE shall also provide a cost estimate for a wetland delineation.

The report as well as the cost estimate shall be provided to:

Andrea W. Campbell
Environmental Protection Division
U.S. Department of Energy
P. O. Box 2001
Oak Ridge, Tennessee 38731-8739

The report shall also be distributed in accordance with the attached Reporting Requirements Checklist and Distribution List.

V. DURATION OF AGREEMENT

See Block 4, Face Page.

VI. PROGRAM OFFICERS

DOE and performing agency - See Block 6 and Block 7, Face Page.
Additional project representatives are as follows:

- COE - Benton Ching, Technical Contact, (808) 438-0140
- COE - Mark Yoshimura, Finance Matters, (808) 438-2978
- DOE - Andrea Campbell, Technical Contact, (615) 576-9578
- DOE - Margie Henderson, Fiscal and Contractual Matters,
(615) 576-0714

VII. OBLIGATION OF FUNDS

The total amount obligated by the U.S. Department of Energy is \$78,000.

VIII. OTHER

The attached General Provisions dated July 13, 1992, are incorporated herewith and made a part of this interagency agreement.

U.S. DEPARTMENT OF ENERGY
REPORTING REQUIREMENTS CHECKLIST

PROGRAM/PROJECT TITLE Survey of Wetlands in Hawaii for the Hawaii Geothermal Project Environmental Impact Statement		2 IDENTIFICATION NUMBER DE-A105-930R22109	
3. PARTICIPANT NAME AND ADDRESS U.S. Army Corps of Engineers, Honolulu District Engineer, Fort Shafter, Hawaii 96858-5440			
4. PLANNING AND REPORTING REQUIREMENTS			
A. General Management ☐ Management Plan ☐ Status Report ☐ Summary Report B. Schedule/Labor/Cost ☐ Milestone Schedule/Plan ☐ Labor Plan ☐ Facilities Capital Cost of Money Factors Computation ☐ Contract Facilities Capital and Cost of Money Cost Plan ☐ Milestone Schedule/Status ☐ Labor Management Report ☐ Cost Management Report C. Exception Reports ☐ Conference Record ☐ Hot Line Report D. Performance Measurement ☐ Management Control System Description ☐ WBS Dictionary ☐ Index ☐ Element Definition ☐ Cost Performance Reports ☐ Format 1 - WBS ☐ Format 2 - Function ☐ Format 3 - Baseline	Frequency	E. Financial Incentives ☐ Statement of Income and Expense ☐ Balance Sheet ☐ Cash Flow Statement ☐ Statement of Changes in Financial Position ☐ Loan Drawdown Report ☐ Operating Budget ☐ Supplementary Information F. Technical ☐ Notice of Energy RD&D Project (Required with any of the following) ☐ Technical Progress Report ☐ Draft for Review ☐ Final for Approval ☒ Topical Report ☒ Final Technical Report (completion of Phase I) ☐ Draft for Review ☐ Final for Approval ☐ Software ☐ Other (Specify) _____	Frequency
5. FREQUENCY CODES			
A - As Required M - Monthly S - Semi-Annually C - Change to Contractual Agreement O - Once After Award X - With Proposal/Bid/Application or with Significant Changes F - Final (end of effort) Q - Quarterly Y - Yearly or Upon Renewal of Contractual Agreement			
6. SPECIAL INSTRUCTIONS (ATTACHMENTS)			
☒ Report Distribution List/Addressees ☐ Analysis Thresholds ☐ Reporting Elements ☐ Work Breakdown Structure ☐ Due Dates ☐ Other			
7. PREPARED BY (SIGNATURE AND DATE) Andrea W. Campbell 4-16-93		8. REVIEWED BY (SIGNATURE AND DATE)	

CONTRACT NUMBER:

7E-A105-930R22109

Management Plan
Milestone Schedule & Status Report
Cost Plan
Manpower Plan
Contract Management Summary Report
Project Status Report
Cost Management Report
Manpower Management Plan
Conference Record
Hot Line Report
Notice of Energy RBD Project
Technical Progress Report
Topical Report
Final Technical Report

ADDRESSEES

NUMBER OF REPORT COPIES

SPECIAL INSTRUCTIONS

Andrea W. Campbell
Environmental Protection Division
DOE Oak Ridge Operations Office
P. O. Box 2001
Oak Ridge, Tennessee 37831-8739

3

Margie W. Henderson
Energy Programs Division
DOE Oak Ridge Operations Office
P. O. Box 2001
Oak Ridge, Tennessee 37831-8613

2

Plus copy of DOE F 1332.15

GENERAL PROVISIONS

FOR DOE FUNDS-OUT MASTER INTERAGENCY AGREEMENTS

[For use with United States Army Corps of Engineers]

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July 13, 1992

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July 13, 1992

GENERAL PROVISIONS

FOR DOE FUNDS-OUT MASTER INTERAGENCY AGREEMENTS

[For use with United States Army Corps of Engineers]

1. Definitions

For purposes of this agreement, "DOE" means the United States Department of Energy or any duly authorized representative thereof, and "COE" means the United States Army Corps of Engineers or any duly authorized representative thereof. The term "IA" means Interagency Agreement.

2. Cost Chargeable to DOE Funds

Direct cost that can be directly identified with and charged to the work under this IA subject to the limitations set forth below. Indirect cost, including COE overhead and Field Office overhead, shall be limited to the properly allocable portion of cost that are not charged directly to the work, but which can be shown as benefiting the work covered by the Task Order, as well as other work of COE. Examples of direct cost are salaries, wages, technical services, materials, travel and transportation, communications, and any facilities and equipment expressly approved for purchase under this IA. In addition, the following restrictions apply:

- a. Foreign travel costs are allowable only when the trip has received the advance approval of the DOE Contracting Officer.
- b. Reimbursement for expenditures at meetings and seminars at which attendance is not required by DOE shall not be allowable without prior written approval of the DOE Contracting Officer.

3. Financing

All tasks accomplished by COE under any Task Order issued under this IA will be authorized and funded by DOE. DOE prefers to finance the work through Treasury's On-line Payment and Collection (OPAC) System. However, until COE has that capability, financing will be provided upon submission of a Standard Form (SF) - 1080, Voucher for Transfers Between Appropriations and/or Funds, or other approved form in lieu of SF-1080. Funding for work will be accomplished as follows:

- a. COE In-House Work: Financed on reimbursable basis. Requests for reimbursement shall show separately the amount required for:
(a) operating cost; (b) capital equipment (as defined in paragraph 8 below); and, (c) acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion.

- b. COE Contracts: If COE is to award any contracts under a Task Order, funding will be provided on a reimbursable basis with provision for advance payment. Advance payment will provide funding necessary to cover cost of anticipated tasks for three months at a minimum or as mutually agreed upon between COE and DOE.

4. Notice of Cost Approaching Total Estimated Cost

Whenever COE determines that the total cost of any Task Order under this IA will be substantially greater or less than the presently estimated cost of the work identified in each Task Order, COE shall promptly notify DOE in writing. COE shall also notify DOE, in writing, when the expenditures made and outstanding commitments under any Task Order are equal to 90 percent (or such other percentage as DOE may establish by notice to COE) of the total funds obligated by DOE to such Task Order. When the expenditures made and outstanding commitments equal 100 percent of such obligated funds, COE shall make no further commitments or expenditures and shall be excused from further performance of the work under that Task Order unless and until DOE shall increase the funds obligated with respect to each individual Task Order.

5. Excess Funds

COE shall take prompt action to identify to DOE any funds determined to be excess for the performance of the task and any funds remaining unobligated after the completion of a task.

6. Financial Reports

COE shall furnish DOE, not later than 10 working days after the close of each reporting period, monthly or other periodic cost or financial reports in such form and detail as may be required by DOE.

7. Accounting Records

COE shall account for obligations and cost incurred in connection with the work being performed under each Task order in such form and detail as may be required by DOE.

8. Amendment, Modification, or Termination

The IA may be modified or amended by written agreement between DOE and COE and terminated by mutual agreement of DOE and COE or by either party upon 30 days written notice to the other.

DOE shall retain the responsibility to determine the scope of the services to be provided and may unilaterally delete any portion of the Scope of Work or terminate the performance of any Task Order prior to its completion.

In the event of termination of this IA or any Task Order under it, COE shall be reimbursed for obligations actually incurred to the date of

termination and for commitments extending beyond the date of termination to a date not later than the date upon which the Task Order would have expired if not terminated under this paragraph, and which COE, in the exercise of due diligence, is unable to cancel. COE shall retain contract administration responsibilities for contracts awarded by COE until such contracts have been terminated or their performance is completed. Payments under Task Orders, including payments under this provision, shall not exceed the ceiling amount specified in each Task Order.

9. Stop-Work Order.

- a. The DOE contracting officer may, at any time, by written order (Order) to COE, require COE and any of its contractors to stop, delay, interrupt or suspend all, or any part of the work to be performed under Task Orders pursuant to this IA, for that period of time the Contracting Officer determines appropriate. The Order shall state the basis for the action taken by DOE and where possible, the corrective action required by COE. Upon receipt of the Order, COE shall immediately comply with its terms and will take all reasonable steps to minimize the incurrence of cost allocable to the work covered by the Order including the suspension of performance by COE contractors. DOE shall remain responsible for cost incurred as a result of the Order.
- b. Within three (3) working days after the delivery of the Order to COE, COE shall submit a corrective action plan to DOE. Thereafter, the parties shall meet to discuss contents of the Order, COE corrective action plan and the conditions required for rescission of the Order. If substantial progress is made on the corrective action plan as determined by the DOE contracting officer, the Order will be cancelled and COE and its contractors shall resume the work. If the Order is not cancelled, DOE may terminate the affected portion of work or the entire Task Order, as provided in Provision 8 entitled, "Amendment, Modification or Termination."
- c. If the work is resumed, COE will make appropriate adjustments in the estimated cost or schedule to perform that portion of the work affected by the Order and provide such information to DOE.

10. Capital Equipment

- a. "Capital Equipment" means each item of equipment which is expected to have an extended period of service, generally two years or more, and has sufficient monetary value, generally of \$5000 or more, to justify continuing accounting records for the item.
- b. Unless expressly authorized by the DOE Contracting Officer in advance, COE shall not be reimbursed or use funds made available under this IA for the procurement or fabrication of capital equipment.

- c. If capital equipment is purchased or otherwise acquired pursuant to an authorization under Paragraph b. above, except as may be otherwise agreed by DOE and COE:

- (1) the title thereto shall vest in DOE;
- (2) COE shall be responsible for the maintenance and safeguarding thereof; and
- (3) COE shall maintain a record in such a manner as to insure adequate control and accounting satisfactory to DOE of capital equipment procured or fabricated. These records shall include as a minimum a list showing the description, make, serial number, and cost of each item acquired.

11. Real Property and Facilities.

- a. Unless expressly authorized by the DOE Contracting Officer in advance, COE shall not be reimbursed or use funds made available under this IA for the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion.
- b. Except as may be otherwise agreed by DOE and COE, if COE acquires or condemns any real property or any facility or acquires, constructs, or expands any plant or facility pursuant to an authorization under subparagraph a. above:
- (1) the title thereto shall vest in DOE and property accountability and control shall become the responsibility of DOE;
 - (2) COE shall be responsible for the maintenance and safeguarding thereof; and
 - (3) COE shall maintain a record thereof in such a manner as to insure adequate control and accounting satisfactory to DOE.
- c. COE shall not be reimbursed or use DOE funds for leasing of facilities to perform all or portions of any task under this IA without the prior approval of DOE. Acquisition of any leased facilities shall be in accordance with COE policies and procedures. If any facilities to be acquired by lease are located in the area surrounding or adjacent to a site, DOE at its option may provide a comparable amount of space to COE using the funds available under this IA.

12. Patents and Technical Data.

It is understood and agreed by DOE and COE that the patent policy to be employed in any particular undertaking under this IA which includes research, development, or demonstration work supported by DOE funding, will be as set forth below:

- a. Whenever a contract, subcontract, task order, or other arrangement has as a purpose the conduct of research, development, or demonstration work, COE will incorporate the patent provisions of 41 CFR 9-9.107-5(a), except where the short form clause of 41 CFR 9-9.107-6 is applicable or the Small Business and Nonprofit Organizations clause 48 CFR 952.227.71 is applicable. Paragraph (k), Background Patents, of CFR 9-9.107-5(a) should normally be deleted for contracts under \$250,000.
- b. Offerors and prospective contractors shall be provided with notice of and the opportunity to request, in accordance with applicable DOE regulations, at any time prior to the effective date of the contract or within 30 days thereafter, an advance waiver of all or any part of the rights of the United States with respect to inventions which may be conceived or first actually reduced to practice in the course of or under the contract. The COE Contracting Officer shall promptly forward such requests to DOE's patent counsel and will notify the contractor whether such request is granted in whole or in part.
- c. Where an agency contractor or subcontractor will not accept patent provisions provided by DOE, COE shall not proceed with the contract or subcontract without written approval of DOE.
- d. COE shall incorporate technical data provisions acceptable to DOE's Patent Counsel in any contract awarded under this IA.

13. Security of Restricted Data.

[This provision is applicable if the work to be done involves classified information or special nuclear material.]

- a. Responsibility. It is COE's duty to safeguard restricted data, formerly restricted data, other classified information, and special nuclear material. COE shall, in accordance with DOE security regulations and requirements, be responsible for safeguarding all classified information, and protecting against sabotage, espionage, loss and theft, the classified documents and material in COE's possession in connection with the performance of work under this IA. Except as otherwise expressly provided in this IA, COE shall, upon completion or termination of this IA, transmit to DOE any classified matter in the possession of COE or any person under COE's control in connection with performance of this IA. If retention by COE of any classified matter is required after the completion or termination of the IA and such retention is approved by DOE, COE will complete a certificate of possession to be furnished to DOE specifying the classified matter to be retained. The certification shall identify the items and types or categories of matter retained, the conditions governing the retention of the matter, and the period of retention, if known. If the retention is approved by DOE, the security provisions of this IA continue to be applicable to the matter

retained. Special nuclear material will not be retained after the completion or termination of this IA.

- b. Regulations. COE agrees to conform to all applicable security regulations and requirements of DOE.
- c. Definition of Classified Information. The term "classified information" means Restricted Data, Formerly Restricted Data, or National Security Information.
- d. Definition of Restricted Data. The term "Restricted Data" means all data concerning (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the Restricted Data category pursuant to Section 142 of the Atomic Energy Act of 1954, as amended.
- e. Definition of Formerly Restricted Data. The term "Formerly Restricted Data" means all data removed from the Restricted Data category under section 142 d. of the Atomic Energy Act of 1954, as amended.
- f. Definition of National Security Information. The term "National Security Information" means any information or material, regardless of its physical form or characteristics, that is owned by, produced for or by, or is under the control of the United States Government, that has been determined pursuant to Executive Order 12356 or prior Orders to require protection against unauthorized disclosure, and which is so designated.
- g. Definition of Special Nuclear Material (SNM). SNM means:
(1) Plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which pursuant to the provisions of Section 51 of the Atomic Energy Act of 1954, as amended, has been determined to be SNM, but does not include source material; or
(2) any material artificially enriched by any of the foregoing, but does not include source material.
- h. Security Clearance of Personnel. COE shall not permit any individual to have access to any classified information, except in accordance with the Atomic Energy Act of 1954, as amended, Executive Order 12356, and DOE's regulations or requirements applicable to the particular level and category of classified information to which access is required. Further, COE shall not permit any individual to perform work on any site who is not a citizen of the United States without DOE approval. DOE will assist COE in obtaining the necessary security clearances required for the performance of this IA.
- i. Criminal Liability. It is understood that disclosure of any classified information relating to the work or services ordered hereunder to any person not entitled to receive it, or failure to

safeguard any classified information that may come to COE or any person under COE's control in connection with work under this IA, may subject COE's employees, or contractors to criminal liability under the laws of the United States. (See the Atomic Energy Act of 1954, as amended, 42 USC 2011, et seq., 10 USC 793 and 794; and Executive Order 12356).

- j. Contracts. Except as otherwise authorized in writing by DOE, COE shall insert provisions covering the foregoing in all contracts under this IA.

14. Classification

[This provision is applicable if the work to be done involves classified information.]

In the performance of the work under this IA, COE shall assign or obtain classifications to all documents, material and equipment originated or generated by COE in accordance with classification guidance furnished to COE by DOE. Every subcontract or purchase order issued hereunder involving the origination or generation of classified documents, material or equipment shall include a provision to the effect that in the performance of such subcontract or purchase order, the subcontractor or supplier shall assign classifications to all such documents, material and equipment in accordance with classification guidance furnished to such subcontractor or supplier by COE.

15. Technical Progress Reports: Publication

COE will make such reports to DOE on the progress of the work under assigned tasks under this IA as may be mutually agreed upon.

It is the policy of DOE to make the results of the research, development and demonstration work contemplated under IAs broadly available to the scientific, technical and engineering community and others through the timely publication of reports or journal articles. All publications and engineering materials prepared under the IA will be freely exchanged, made available for public sales, unless classified. Prior to the public release of any information pursuant to this subparagraph, COE shall be responsible for compliance with established DOE procedures for clearance of documents.

Each IA technical report issued and each task order technical report issued pursuant to an IA will be accompanied by a DOE Form 1332.15 and a statement describing the technical reports delivered.

16. Environmental Safety and Health Requirements

DOE will not assume responsibility for prescribing and/or enforcing environmental safety and health requirements for operators of other Agency facilities engaged in the performance of DOE work.

17. Safety and Health.

COE shall be responsible for administering the safety and health program for COE activities under this IA and shall comply with all applicable safety and health regulations, directives, orders, and requirements (including reporting requirements) of DOE. The DOE Contracting Officer shall notify in writing COE of any noncompliance with the provisions of this clause and the corrective action to be taken. After receipt of such notice, COE shall immediately take such corrective action. COE shall submit a management program and implementation corrective action plan to the DOE Technical Project Officer for review and approval within 30 days after notification of noncompliance. In the event that COE or its contractors, fails to comply with said regulations or requirements of DOE, the DOE Contracting Officer may, without prejudice to any other legal or contractual rights of DOE, issue an order stopping all or any part of the work; thereafter, work will not be resumed until directed by the DOE Contracting Officer. COE shall not support any claim by its contractors for an extension of time or for compensation or damages by reason of, or in connection with, such work stoppage.

18. Environmental Protection.

COE shall assure that all activities undertaken pursuant to this IA are in compliance with applicable federal and state environmental laws and regulations including applicable federal or state permit requirements. COE shall advise DOE of all permits or authorizations required to be obtained from federal, state or local regulatory agencies for work to be performed on any site, and shall work with or assist DOE in obtaining such permits in the manner directed by DOE.

19. Labor Standards Determinations.

The DOE Labor Standards Board shall determine the appropriate Labor Standards which shall apply to all work performed under this IA. COE shall provide such information in the form and timeframe required by the Board, as may be necessary for the DOE Labor Standards Board to make such labor standards determinations.

20. Preservation of Individual Occupational Radiation Exposure Records.

Individual occupational radiation exposure records generated in the performance of work under this IA shall be subject to inspection by DOE and shall be preserved by COE until disposal is authorized by DOE or at the option of COE delivered to DOE upon completion or termination of the IA. Title to such records shall vest in DOE upon delivery.

21. Waste Handling and Transfer.

COE shall be responsible for the packaging, monitoring and storage at the job site of all hazardous, radioactive, mixed and non-hazardous wastes in accordance with applicable laws and regulations. DOE shall assume responsibility for storage and disposal of waste when properly packaged

and delivered to DOE by COE in accordance with applicable federal, state, and local laws and regulations, as well as DOE Orders and site policy.

22. Procurement Policy

COE may contract for portions of the work defined in Task Orders. COE shall encourage competition and award contracts in accordance with the Federal Acquisition Regulations (FAR) as implemented by the Department of Defense Supplement to the FAR and COE policies and procedures descending from these regulations. COE shall make any determinations and findings required by law or regulations and shall be responsible for contract management.

23. Public Affairs

DOE retains responsibility for Congressional liaison and public announcements. However, COE may make public announcements associated with the normal solicitation and contract award process, and following coordination with DOE, respond to Congressional inquiries for factual data on work tasked to COE. COE will assist DOE in answering Congressional inquiries related to COE delegated activities by preparing and furnishing draft responses on a priority basis to DOE for review and final disposition. All Freedom-of-Information Act (FOIA), 5 USC 552, inquiries to COE regarding work performed or to be performed at the DOE Sites will be provided to DOE with a proposed response in sufficient time for COE to meet all applicable time limits required for handling of FOIA requests.

24. Responsibility for Work

COE is responsible for performing all tasks issued under this IA in accordance with applicable law. If there is failure by COE to comply with applicable laws resulting in liability imposed on the United States, COE will accept responsibility for its actions and will support DOE requests for additional appropriations as required.

25. National Response Center Notifications

For all COE activities under this IA, COE shall provide all notifications to the National Response Center and the appropriate State Regulatory Agencies in accordance with applicable laws and regulations and as DOE specifies.

26. Dispute Resolution

The parties shall use their best efforts to resolve disputes arising under this IA through discussions at the lowest appropriate level. Disputes which cannot be resolved through such efforts will be elevated to higher authority for resolution consistent with the organization chain of command.

ATTACHMENT 2

**INTERAGENCY AGREEMENT WITH THE
U.S. GEOLOGICAL SURVEY**

U.S. DEPARTMENT OF ENERGY
INTERAGENCY AGREEMENT FACE PAGE

FUNDS-OUT INTERAGENCY AGREEMENT (IA)

Pursuant to authority of Economy Act of 1932 as amended
(U.S.C. 1535); PL 95-91;

Other:

2. TYPE OF ACTION:

☒ New Award ☐ Modification ☐ Extension ☐ Other

3. PROJECT TITLE/DESCRIPTION:

Geological Surveys Relative to Proposed Hawaii Geothermal Project

4. AGREEMENT PERIOD (month, day, year)

FROM: 4/1/93 TO: 6/30/94

5. FINANCIAL

a. Accounting and Appropriation Data:

89X0224.91
OR-34-91
250

b. Funding sources

DOE This Action
Agency (AM 10 01)

Total Funding

\$ 496,710

\$ 496,710

c. Method of Payment:

☐ Advance ☒ Reimbursement ☐ Progress

d. Amount obligated this action: \$ 496,710

e. Invoices, if any, submit to:

Department of Energy
P.O. Box 2001
Oak Ridge, Tennessee 37831-8613
ATTN: M. W. Henderson, ER-113f. Voucher Form to be used:
OPAC Billing and cite thereon
DE-A105-930R22089

1. IDENTIFICATION

a. DOE IA No.: DE-A105-930R22089
b. Other agency IA No.:
c. Modification No.: A000
d. Task order No.:
e. PR No.: 05930R22089.000

6. DOE PROGRAM OFFICER

Name: Judith C. Stroud
Office of Asst. Mgr. for Energy
Address: Research and Development
DOE Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, TN 37831-8600Telephone Number:
(615) 576-1836

7. PERFORMING AGENCY

a. Name: U.S. Dept. of the Interior
Geological Surveyb. Address: 911 National Center
Reston, VA 22092

Attention: Benjamin A. Morgan

c. Program Director

Name: Peter W. Lipman, Coordinator
Geothermal Research Program
Address: U.S. Department of the Interior
Geological Survey
345 Middlefield Rd. MS 910
Menlo Park, CA 94025Telephone Number:
(415) 329-5228

8. ISSUING AGENCY:

Department of Energy (DOE)
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8613

9. PERFORMING AGENCY ACCEPTANCE:

(signature)1/19/93
(date)

Name (typewritten): Benjamin A. Morgan

Title (typewritten): Chief Geologist

Telephone: 703-648-6600

10. DOE CONTRACTING OFFICER:

(signature)3/27/93
(date)

Name (typewritten): Charles D. Crowe

Title (typewritten): Contracting Officer

Interagency Agreement No. DE-AI05-930R22089
Performing Agency: U.S. Department of Interior
Geological Survey

I. PURPOSE

The U.S. Department of Energy (DOE) has a need for the technical support and assistance of the U.S. Department of Interior, Geological Survey, in discerning salient geologic information in relation to environmental impacts from the proposed development of geothermal power in the State of Hawaii. This assistance is requested pursuant to the 1992 Memorandum of Understanding regarding the preparation of an Environmental Impact Statement for the Hawaii Geothermal Project. The tasks described in the Scope of Work shall focus on proposed sites for the Hawaii Geothermal Project (HGP), affected portions of the Puna District surrounding the HGP on the Island of Hawaii, and the proposed corridors for transmission lines (including conversion stations) in the State of Hawaii. DOE will use this information in the preparation of an Environmental Impact Statement (EIS) for the proposed HGP. DOE expects USGS experts to provide technically reliable and most recent geoscience information about the areas potentially affected by the proposed HGP so that accurate analyses of environmental impacts can be performed by DOE or its designated representative. Because USGS input to the EIS must be accessible for public scrutiny, all final products described below will be released as USGS Open-File Reports or in other publications prior to completion of the draft HGP EIS (currently scheduled for the end of the CY 1993).

II. SCOPE OF WORK

Task 1: Literature Search and Technical Review

Description:

The USGS shall search and review its research and technical library (both published and unpublished sources) to identify information for the following topics (1) volcanic emissions in relation to ambient air concentrations in proximity to the HGP, (2) groundwater and geothermal hydrology of Kilauea, (3) volcanology and ground deformation with a primary focus on potential hazard impacts for the HGP, (4) seismicity of the Island of Hawaii and adjacent ocean areas, (5) marine geology of the Hawaiian Islands, with special focus on natural marine hazards, including submarine slides and turbidity currents. USGS shall provide DOE with a selected annotated bibliography, describing the most important references that are reviewable within the allocated working time, and indicating their quality and relevance to environmental issues raised by the HGP. Annotated bibliographies for each of the five topics shall be accompanied by two copies of all referenced USGS publications that are still in print.

Unpublished cited information shall be described in sufficient detail to allow DOE to evaluate its usefulness for the EIS, and where appropriate, will be included in publications prepared as products of Task 3. Subjects requiring additional effort by USGS beyond preparation of annotated bibliographies are discussed further under Task 3, below.

Justification:

The information to be provided by Task 1 is required for DOE to identify those technical areas that are currently well defined and those that require additional technical studies by USGS (or others) to support impact analyses as required for the EIS (see Task 3, below).

Level of Effort:

0.5 Full Time Equivalent (FTE); approximately 0.1 FTE per Task 1 topic, as listed above.

Task 2: Geothermal Fluid Characterization

Description:

There are approximately ten completed geothermal test wells and four Scientific Observation Holes (SOH) in the Puna District of Hawaii, which is the general location of the HGP. The USGS shall identify for DOE those wells that have been adequately characterized with respect to chemical constituents in geothermal fluids, those that may require additional chemical characterization, and those that may be accessible for sample collection and analysis. The HGP impacts analysis would be strengthened if geothermal fluids were characterized for as many different areas in the Puna District as possible, including those areas with thermal springs. Sample collection from geothermal test wells shall be performed in such a manner as to capture all condensible and non-condensable gases, and all liquids. DOE and USGS shall consult on sampling protocols prior to initiation of field work.

USGS laboratory staff shall fully characterize the constituents of each fluid sample. The percentage of water in the liquid and steam phases also shall be estimated. The EPA priority pollutant list (Code of Federal Regulations) shall be considered in selecting species whose stoichiometric quantities must be determined. Based on its own expertise and judgment, the USGS also shall define additional chemical species to be analyzed. The USGS shall provide DOE with a report which provides chemical characterization of each well sampled, including liquid and gaseous phases, and the percent steam yield.

Justification:

Knowledge of the chemical characteristics of fluids from geothermal wells is required for the EIS to evaluate the potential environmental impacts of routine well drilling, controlled well venting, production and reinjection of geothermal fluids, and surface impoundments. Such characterization also is necessary to analyze the environmental impacts of (1) accidental subsurface casing rupture on ground water resources and (2) accidental uncontrolled well venting on water resources and air quality.

Level of Effort:

The level of effort for this sampling depends on the accessibility of geothermal wells in the Puna District; a critical initial step will be relief from the court order prohibiting any federally funded studies of materials from the HGP. Some wells are dry; others are heavily instrumented and unavailable for sample collection; and still others (4 to 6 near the HGP-A well which has already been characterized) are shut-in while waiting to go on-line as production wells. Ideally, all the shut-in production wells could be sampled within a several-day period, assuming the court and the developers allow such sampling. Field sampling, chemical analysis, interpretation, and report writing for all the shut-in production wells should require a total of approximately 0.4 FTE. Sample collection time-requirements for other wells (if feasible) is unknown at this time.

Task 3: USGS Technical Analyses

The following tasks are arranged in order of priority. Task 3A and 3B have the highest priority. These two tasks will provide information necessary for analysis of impacts from construction, development, and operation of HGP. Task 3C-3F are roughly equivalent in priority. The latter tasks are related to accident-driven impacts during the operation of HGP. DOE will provide the USGS with summary plans for HGP transmission-line routes and locations of near-shore facilities prior to initiation of work on Task 3.

Task 3A: Volcanic Gas Emissions

Description:

Data are required to characterize background emissions from Kilauea's summit and its East Rift Zone, against which the effects of HGP emissions can be compared. Major data types will include results of direct measurement of Kilauea emissions during eruptive and repose periods,

and also indirect samples using precipitation collections. Background air concentration data surrounding HGP for the Puna District (if available) would be useful to compare with ambient air measurements near East Rift volcanogenic sources.

Justification:

Background ambient air measurements for the volcanogenic component are needed for the EIS to help determine the impact from routine construction and operations emissions, and the impact from accidental uncontrolled well venting. This information is also important in establishing air quality standards and monitoring requirements to be met under the terms of State, County, and local air quality permits.

Level of Effort:

0.3FTE

Task 3B: Characterization of and Impact on Ground Water Resources

Description:

The major questions to be resolved are whether or not existing or planned potable or industrial ground-water wells near HGP could be contaminated during normal or upset conditions, and where a suitable water supply can be obtained to construct and operate HGP, including cooling water for power plants and AC to DC conversion facilities. Large quantities of water will be required to quench wells if accidental blowouts occur. The scope of work for this task includes characterization both of the quality and quantity of ground-water resources in the general vicinity of the HGP and possible impacts of geothermal development on these resources. Available groundwater wells, cold springs, and thermal springs should be inventoried and sampled. If necessary, the USGS should consult with the County of Hawaii to complete this water resource evaluation and to bring it up-to-date. Locations of nearby catchment water systems would be useful information.

Justification:

Background ground water data are required for the EIS to determine the impacts from construction, development, and operation of HGP. A principal objective is to determine whether the ground-water use category will change as a result of HGP.

Level of Effort:

0.4 FTE

Task 3C: Volcanic Activity and Deformation Hazard Analysis

Description:

Volcanic and deformation hazards will be analyzed on the basis of distribution/age maps of Holocene and historic lava flows and tephra eruptions, and of geologically and geodetically determined uplift, subsidence, and extension, for the East Rift Zone of Kilauea (geothermal power plants) and along the flanks of Mauna Loa and Mauna Kea (transmission line routes and AC-DC conversion stations). To the degree available data permit, the report shall estimate the probabilities and magnitudes of occurrence of these events over the 50-year operating life of HGP.

Justification:

It is assumed that volcanic activity, uplift, and subsidence could cause: (1) simultaneous multiple well-head failures resulting in uncontrolled venting, (2) toppling of transmission line poles along the two proposed transmission line routes, (3) turbidity current damage to an undersea transmission line, and (4) seismic sea wave (tsunami) damage to shoreline installation (AC-DC conversion stations and near-shore transmission lines). HGP production facilities will also require deformation-monitoring instrumentation to evaluate local production-induced subsidence and uplift resulting from withdrawal and injection of geothermal fluids. Knowledge of volcanic activity and ground deformation are required to support analysis in the EIS of potential impacts on HGP facilities.

Level of Effort:

0.5 FTE

Task 3D: Seismic Hazard Analysis

Description:

The USGS shall perform a seismic hazard analysis for the East Rift of Kilauea. Historical activity will be summarized in graphic plots. Peak ground accelerations and their uncertainties shall be estimated for time intervals ranging from 50 to 10,000 years.

The potential for ground motion magnification, liquefaction, surface rupture, and earthquake-induced landslides along the East Rift Zone and along the proposed transmission line routes also shall be evaluated.

Justification:

It is assumed that strong-motion earthquakes can cause: (1) simultaneous multiple well-head failures resulting in uncontrolled venting, (2) toppling of transmission line poles along the two proposed transmission line routes, and (3) coastal landslides, tsunami, and underwater turbidity currents (see Task 3E). If well-heads are designed to resist ground motions up to a given peak ground acceleration, one could ascertain the probability of uncontrolled venting of one or more wells. Knowledge of seismic hazards is required to support analysis in the EIS of potential impacts on HGP facilities.

Level of Effort:

0.7 FTE

Task 3E: Natural Marine Hazards, Including Undersea Slides and Turbidity Currents

Description:

The potential for natural marine hazards, especially seismic sea waves (tsunami), rock and sand slides, and turbidity currents to impact undersea cables and conversion stations near the shoreline shall be considered. Historical occurrences of the phenomena shall be cited. Information relative to magnitude-recurrence interval shall be provided if obtainable.

Justification:

Tsunami, coastal landslides, or underwater turbidity currents could damage shoreline installation (AC-DC conversion stations and near-shore transmission lines) and undersea transmission lines. A shut-down of conversion facilities or damage to a transmission line would cause widespread power failures, having a devastating effect on the economy of Hawaii if alternative sources of energy become unavailable. Furthermore, geothermal wells would have to shut down to avoid damage to HGP. These events would lead to unscheduled venting of production wells during the required shut-down period. Knowledge of natural marine hazards is required to support analysis in the EIS of potential impacts on HGP facilities.

Level of Effort:

0.4 FTE

Task 3F: Induced Seismicity

Description:

The USGS shall investigate the potential for induced seismicity from reinjection of spent geothermal fluids. USGS also shall evaluate methods to distinguish between natural and induced seismicity by using data from other regions and existing theoretical models. Results shall be compared with background seismicity which is addressed in Task 3D.

Justification:

It is necessary to distinguish between natural and induced seismicity to establish responsibility for damage resulting from earthquakes. HGP facilities would require seismic instrumentation to monitor induced and natural events. Knowledge of induced seismicity is required to support analysis in the EIS of potential impacts from HGP facilities.

Level of Effort:

0.2 FTE

Task 4: Coordination of USGS Work and Peer Review of Draft HGP EIS

Description:

The USGS shall designate a technical coordinator for its contributions to the HGP EIS, who will provide technical and editorial guidance (1) to assume that a scientifically sound and coherent set of reports are prepared by scientists working on the separate designated tasks, (2) to monitor progress and deadlines, (3) to edit and supervise internal USGS reviews of the preliminary reports to DOE and the final USGS Open-File Reports, and (4) eventually to coordinate USGS review of the ground water and geology sections of the Draft HGP EIS. The EIS review shall examine pertinent sections for technical accuracy and completeness. This review also shall examine impact analyses and the assumptions on which they are based. Overall responsibility for USGS participation in the HGP EIS and for coordination with DOE will continue to be through Dr. Peter W. Lipman (Menlo Park), who manages the Volcanic Hazards Program and the Geothermal Research Program of the USGS.

Justification:

A single technical advisor is needed to coordinate the 15-20 USGS scientists who will contribute information to the tasks described above, especially in light of the short time frame for completing reports, issuing publicly accessible documents (as USGS Open-File Reports), and promptly reviewing the draft HGP EIS. For review of the geologic sections

of draft HGP EIS, the USGS has a staff of recognized professional geologists with extensive experience in Hawaii. Their unbiased review is crucial in validating the accuracy and completeness of these sections of the HGP EIS.

Level of Effort:

0.5 FTE

Approximate Total Level of Effort (Task 1 to 4)

3.9 FTE

III. COST

The DOE hereby obligates \$496,710 for actual cost to support work performed through June 30, 1994. The current obligation is based on the following budget estimates:

For clarification, a summary of funding for each task is shown on Page 10.

IV. DELIVERABLES/REPORTS

1. Task 1 - Literature Search and Technical Review

Draft bibliographies for each of the five topics shall be delivered to DOE over a 3-month period (1-2 topics per month), commencing two months after execution of interagency agreement.

2. Task 2 - Geothermal Fluid Characterization

Draft report on the analysis of shut-in production wells shall be delivered 2-4 months after the samples are collected.

3. Task 3A - Volcanic Gas Emissions

Draft report shall be completed within 3 months after the completion of the annotated bibliography for topic 1 of Task 1.

4. Task 3B - Characterization of and Impact on Ground Water Resources

Draft report shall be completed within 3 months after the completion of the annotated bibliography for topic 2 of Task 1.

III. COST (cont'd)

	<u>TASK 1</u>	<u>TASK 2</u>	<u>TASK 3A</u>	<u>TASK 3B</u>	<u>TASK 3C</u>	<u>TASK 3D</u>	<u>TASK 3E</u>	<u>TASK 4</u>	<u>TOTAL</u>
STAFF	Allocated in respective task	53,230	37,500	73,190	74,130	108,830	60,040	58,180	465,100
Travel		1,900	1,410	3,100	4,400	2,000	1,200		14,010
Laboratory/Field Expenses		1,000					1,000		2,000
Deuterium, Oxygen-18, and Tritium Analyses		10,000							10,000
Helicopter Support			800						800
Instrument for Ambient Air Concentrations			4,800						4,800
TOTAL		66,130	44,510	76,290	78,530	110,830	62,240	58,180	496,710

5. Task 3D - Seismic Hazard Analysis

Draft report shall be completed 3 months after the completion of the annotated bibliography for topic 4 and 5 of Task 1.

6. Task 3E - Natural Marine Hazards, Including Undersea Slides and Turbidity Currents

Draft report shall be completed 3 months after the completion of the annotated bibliography for topic 5 for Task 1.

7. Task 3F - Induced Seismicity

Draft report shall be provided 1 months after completion of Task 3D.

8. Task 4 - Coordination of USGS work and Peer Review of Draft HGP EIS

The designated technical coordinator will work closely with participating USGS scientists starting immediately after execution of interagency agreement. Preliminary draft HGP EIS with comments to DOE shall be due 1 month after receipt of executed agreement. Review shall be made of draft responses to public comments on the Draft EIS and the Preliminary Final EIS and returned to DOE two weeks after receipt.

9. Tasks 1, 2, 3A, 3B, 3D, 3E, and 3F

Final technical report shall be due by the end of CY 1993 as USGS Open-File Reports that are publicly available or within 3 months after DOE comments are returned, whichever is the later date.

All draft reports shall be provided to :

Judith C. Stroud
Office of Assistant Manager for Energy Research
and Development
DOE Oak Ridge Field Office
P. O. Box 2001
Oak Ridge, Tennessee 37831-8600

The final report shall be distributed in accordance with the attached Reporting Requirements Checklist and Distribution List.

V. DURATION OF AGREEMENT

See Block 4, Face Page.

VI. PROGRAM OFFICERS

DOE and performing agency - See Block 6 and 7, Face Page.
Additional project representatives are as follows:

USGS - Manuel Nathenson, Technical Coordinator, (415) 329-5292

USGS - Betty Medley, Administrative Officer, (703) 648-6702

DOE - Andrea Campbell, Technical Coordinator, (615) 576-9578

DOE - Margie W. Henderson, Fiscal and Contractual Matters,
(615) 576-0714

VII. OBLIGATION OF FUNDS

The total amount obligated by the U.S. Department of Energy
is \$496,710.

VIII. OTHER

The attached Standard General Provisions dated July 13, 1992, are
incorporated herewith and made a part of this agreement.

U.S. DEPARTMENT OF ENERGY
REPORTING REQUIREMENTS CHECKLIST

1. PROGRAM/PROJECT TITLE Geological Surveys Relative to Proposed Hawaii Geothermal Project		2. IDENTIFICATION NUMBER DE-A105-930R22089																																																																															
3. PARTICIPANT NAME AND ADDRESS U.S. Department of Interior, Geological Survey																																																																																	
4. PLANNING AND REPORTING REQUIREMENTS																																																																																	
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7. PREPARED BY (SIGNATURE AND DATE) Judith C. Stroud <i>JCS</i>		8. REVIEWED BY (SIGNATURE AND DATE) <i>RE</i> 3.24.93																																																																															

REPORTING REQUIREMENTS CHECKLIST (Continued)

F.4. Final Technical Report shall be due by the end of CY 1993 or within 3 months after DOE comments are returned, whichever is the later date. The report shall include detailed activities related to the following:

- Task 1 - Literature Search and Technical Review.
- Task 2 - Geothermal Fluid Characterization.
- Task 3A - Volcanic Gas Emissions.
- Task 3B - Characterization of and Impact on Ground Water Resources.
- Task 3D - Seismic Hazard Analysis.
- Task 3E - Natural Marine Hazards, Including Undersea Slides and Turbidity Currents.
- Task 3F - Induced Seismicity.

CONTRACT NUMBER:

DE-AI05-930R22089

Management Plan
Milestone Schedule & Status Report
Cost Plan
Manpower Plan
Contract Management Summary Report
Project Status Report
Cost Management Report
Manpower Management Plan
Conference Record
Pilot Line Report
Notice of Energy R&D Project
Technical Progress Report
Topical Report
Final Technical Report

ADDRESSEES

NUMBER OF REPORT COPIES

SPECIAL INSTRUCTIONS

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**STANDARD GENERAL PROVISIONS
FOR DOE FUNDS-OUT INTERAGENCY AGREEMENTS**

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July 13, 1992

STANDARD GENERAL PROVISIONS
FOR DOE FUNDS-OUT INTERAGENCY AGREEMENTS

1. Definitions

For purposes of this agreement, "DOE" means the United States Department of Energy or any duly authorized representative thereof, and "Agency" means the performing agency stated in the agreement or any duly authorized representative thereof. The term "IA" means Interagency Agreement.

2. Cost Chargeable to DOE Funds

Direct cost is the cost that can be directly identified with and charged to the work under this IA subject to the limitations set forth below. Indirect cost, including Agency overhead, shall be limited to the properly allocable portion of cost that are not charged directly to the work, but which can be shown as benefiting the work covered by the IA, as well as other work of the Agency. Examples of direct cost are salaries, wages, technical services, materials, travel and transportation, communications, and any facilities and equipment expressly approved for purchase under the IA. In addition, the following restrictions apply:

- a. Foreign travel costs are allowable only when the trip has received the advance approval of the DOE Contracting Officer.
- b. Reimbursement for expenditures at technical meetings and seminars at which attendance is not required by DOE shall not be allowable without prior written approval of the DOE Contracting Officer.

3. Financing

DOE will finance programs on a reimbursable basis when acceptable to the other agency. If the reimbursable basis is not acceptable, however, then DOE will finance the work by advancing funds through Treasury's On-line Payment and Collection (OPAC) System or by a transfer of appropriated funds. DOE will reimburse or will make available in advance, the amount specified in the IA incorporating these general provisions. Requests for funds shall show separately the amount required for (a) operating costs, (b) capital equipment (as defined in paragraph 9.a.), and (c) acquisition or condemnation of any real property or any facility, or for plant or facility acquisition, construction or expansion.

- a. Vouchers for payment will be submitted on the agreed upon form.
- b. Any funds advanced which are expected to remain beyond the original period of performance for a project which is incomplete, or for which there is an increased scope of work, will remain available to the Agency if the IA is amended by the DOE to extend the period of

performance for the project or any other work beyond the original completion date. Request for such time extensions should be made to the DOE by the Agency at least 30 days prior to the end of the period of performance.

- c. Any advanced funds remaining for a continuing project or any other work remain available for the entire performance period of the project, unless there is a date specified as a required completion date after which no further funds shall be expended.
- d. Any advanced funds remaining after the completion of a research project shall be reimbursed to the DOE.

4. Notice of Cost Approaching Total Estimated Cost

Whenever the Agency has reason to believe that the total cost of the work under this agreement will be substantially greater or less than the presently estimated cost of the work, the Agency shall promptly notify the DOE in writing. The Agency shall also notify the DOE, in writing, when the aggregate of cost incurred and outstanding commitments allowable under this agreement is equal to 90 percent (or such other percentage as the DOE may from time to time establish by notice to the Agency) of the presently estimated total cost under this agreement. When the cost incurred and outstanding commitments equal 100 percent of such estimated total cost, the Agency shall make no further commitments or expenditures (except to meet existing commitments) and shall be excused from further performance of the work unless and until the DOE shall increase the total estimated cost to be incurred with respect to this agreement.

5. Excess Funds

The Agency shall take prompt action to return to the DOE any funds determined to be excess to the work during the performance of the work and any unobligated funds after the completion of the agreement or as of September 30 each year unless the agreement has been extended and any unused balances have been carried forward in the extension. In a joint venture project where the performing Agency deposits the advance in the OPAC System, any unobligated balances shall be returned to the DOE before the cutoff date at the close of each fiscal year.

6. Financial Reports

The agency shall furnish the DOE, not later than 15 days after the close of each reporting period, monthly or other periodic cost or financial reports in such form and detail as may be required by the DOE. Any cost incurred for capital equipment or other assets shall be supported by a list showing the description, make, any serial number, and the cost of each item acquired.

7. Accounting Records

The Agency shall accumulate and account for obligations and cost incurred in connection with the work being performed under this agreement in such form and detail as may be required by the DOE.

8. Termination

The DOE may terminate this agreement upon 30 days written notice of such termination addressed to the Agency. In the event of such termination, the Agency shall be reimbursed, to the extent permitted, for obligations actually incurred to the effective date of termination and for commitments extending beyond the effective date of termination to a date not later than the date upon which the agreement would have expired if not terminated under this paragraph, which the Agency, in the exercise of due diligence, is unable to cancel. Payments under this agreement, including payment under this provision, shall not exceed the ceiling amount elsewhere specified in this agreement.

9. Capital Equipment

- a. "Capital Equipment" means each item of equipment which is expected to have an extended period of service, generally two years or more, and has sufficient monetary value, generally of \$5000 or more, to justify continuing accounting records for the item.
- b. Unless expressly authorized by the contracting officer in advance, the Agency shall not be reimbursed or use funds made available under this agreement for the procurement or fabrication of capital equipment.
- c. If capital equipment is purchased or otherwise acquired pursuant to an authorization under Paragraph (b) above, except as may be otherwise agreed by the DOE and the Agency:
 - (1) the title thereto shall vest in the DOE;
 - (2) the Agency shall be responsible for the maintenance and safeguarding thereof; and
 - (3) the Agency shall maintain a record in such a manner as to insure adequate control and accounting satisfactory to the DOE of capital equipment procured or fabricated.

10. Real Property and Facilities.

- a. Unless expressly authorized by the contracting officer in advance, the Agency shall not be reimbursed or use funds made available under this agreement for the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion.

- b. If the Agency acquires or condemns any real property or any facility or acquires, constructs or expands any plant or facility pursuant to an authorization under (a) above, except as may be otherwise agreed by the DOE and the Agency:

- (1) the title thereto shall vest in the DOE, and property accountability and control shall become the responsibility of DOE;
- (2) the Agency shall be responsible for the maintenance and safeguarding thereof; and
- (3) the Agency shall maintain a record thereof in such a manner as to insure adequate control and accounting satisfactory to the DOE.

11. Patents and Technical Data.

It is understood and agreed by the Department of Energy (DOE) and the Agency that the patent policy to be employed in any particular cooperative undertaking between the parties which includes research, development, or demonstration work and is supported in whole or in part by DOE funding will be as set forth below:

- a. In any contract or task order under a contract where the Agency has the work performed by an Agency contractor (other than a small business firm or nonprofit organization) and the work is not severable from that funded by the Agency, the Agency will incorporate the Patent Rights clause of DOEPR §9-9.107-5(a), except for certain consultant contracts where the short form clause of DOEPR §9-9.107-6 is applicable.

Where, however, the contract or task order is with a small business firm or nonprofit organization, the patent right clause used in the contract shall be in accordance with the provisions of P.L. 96-517. If the Agency regulations provide such a clause, then that clause may be used. If this is not the case, then the attached clause entitled, "Patent Rights (Small Business Firms or Nonprofit Organizations)" shall be used in the contract.

To enable the Agency to efficiently administer the Patent Rights clause, the definition of Patent Counsel in the clause shall be replaced with the following definition:

"Patent Counsel" means the Department of Energy Patent Counsel assisting the DOE activity funding the contract. Items pertaining to the administration of this clause, including invention reports, greater rights, and waiver requests, shall be sent to the Patent Counsel via the Agency Contracting Officer.

- b. Offerors and prospective contractors (other than small business firms and nonprofit organizations) shall be provided with notice of and the

opportunity to request, in accordance with applicable DOE regulations, at any time prior to the effective date of the contract or within 30 days thereafter, an advance waiver of all or any part of the rights of the United States with respect to inventions which may be conceived or first actually reduce to practice in the course of or under the contract. The Agency Contracting Officer shall promptly forward such requests to the DOE Patent Counsel and will notify the contractor whether such request is granted in whole or in part.

- c. Where an Agency contractor or subcontractor will not accept patent provisions provided by DOE, the Agency shall not proceed with the contract or subcontract without written approval of the DOE Patent Counsel.
- d. [This paragraph d. applies if IA is with a non-DOD agency.]
In any contract or task order under a contract where the Agency has the work performed by Agency personnel, either military or civilian, at an Agency installation or that of an Agency contractor, any inventions, or discoveries made or conceived in the course of or in connection with such work shall be reported and handled in accordance with standard Agency procedure. All such inventions, however, shall also be reported to DOE and the Agency will consult with DOE prior to making any determination in which the Government would obtain less than the entire right, title and interest in such inventions.
- d. [This paragraph d. applies if IA is with a DOD agency.]
In any contract or task order under a contract where the Agency has the work performed by Agency personnel, either military or civilian, at an Agency installation or that of an Agency contractor, any inventions, or discoveries made or conceived in the course of or in connection with such work shall be reported and handled in accordance with standard Agency procedure.
- e. It is recognized that during the course of the work under this agreement, the Agency or its employees, consultants, or contractors may, from time to time, desire to publish, within the limits of security requirements, information regarding scientific or technical developments made or conceived in the course of or under this agreement. In order that public disclosure of such information will not adversely affect the patent interests of DOE or the Agency, patent approval for release and publication shall be secured from DOE prior to any such release or publication.

It is recognized that there is a close relationship between DOE's patent and data policies and DOE's mission of achieving wide-spread availability and competitive commercial utilization of the benefits of DOE-funded research, development, and demonstration activities in the shortest practical time. Accordingly, the Agency shall obtain substantially the same rights in data as those set forth in DOEPR §9-9.200 where such is: (a) specifically requested by DOE; or (b) part of the terms and conditions of a patent waiver. Additionally, whenever the total estimated cost of a DOE-funded contract under this agreement is over \$5,000,000,

the technical data provisions to be included in the contract shall be approved by DOE Patent Counsel.

12. Security of Restricted Data.

[This provision is applicable if the work to be done involves classified information.]

a. It is the Contracting Agency's duty to safeguard restricted data, formerly restricted data and other classified information. The Agency shall, in accordance with DOE security regulations and requirements, be responsible for safeguarding restricted data, formerly restricted data and other classified information, and protecting against sabotage, espionage, loss and theft, the classified documents and material in the Agency's possession in connection with the performance of work under this agreement. Except as otherwise expressly provided in this agreement, the Agency shall upon completion or termination of this agreement, transmit to DOE any classified matter in the possession of the Agency or any person under the Agency's control in connection with performance of this agreement. If retention by the Agency of any classified matter is required after the completion or termination of the agreement and such retention is approved by the DOE, the Agency will complete a certificate of possession to be furnished to DOE specifying the classified matter to be retained. The certification shall identify the items and types or categories of matter retained, the conditions governing the retention of the matter and the period of retention, if known. If the retention is approved by the DOE, the security provisions of the agreement will continue to be applicable to the matter retained.

b. Regulations

The Agency agrees to conform to all security regulations and requirements of DOE.

c. Definition of Restricted Data

The term "restricted data," as used in this clause, means all data concerning: (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy; but shall not include data declassified or removed from the restricted data category pursuant to Section 142 of the Atomic Energy Act of 1954.

d. Definition of Formerly Restricted Data

The term "formerly restricted data," as used in this clause, means all data removed from the restricted data category under Section 142 d of the Atomic Energy Act of 1954, as amended.

e. Security Clearance of Personnel

The Agency shall not permit any individual to have access to restricted data, formerly restricted data, or other classified information, except in accordance with the Atomic Energy Act of 1954, as amended, and the DOE's regulations or requirements applicable to the particular type or category of classified information to which access is required.

f. Criminal Liability

It is understood that disclosures of restricted data, formerly restricted data or other classified matter relating to the work or services ordered hereunder to any person not entitled to receive it, or failure to safeguard any restricted data, formerly restricted data or any other classified matter in connection with work under this agreement, may subject any representatives of the Agency, its agents, employees or subcontractors to criminal liability under the laws of the United States. (See the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2100 et seq.; 12 U.S.C. 793 and 794; and Executive Order 12356.)

g. Contracts and Purchase Orders

Except as otherwise authorized in writing by DOE, the Agency shall insert provisions similar to the foregoing in all contracts and purchase orders under this agreement.

h. Security Requirements for Proprietary Energy Data

The Agency shall safeguard DOE limited official use information, or other proprietary or sensitive data (including material relating to patents), from unauthorized access, disclosure, modification or destruction in accordance with applicable DOE security regulations and applicable orders and directives.

i. Computer Security Requirements

In the event that this Agreement involves utilization of a DOE computer system, the Agency will establish administrative, technical and physical security procedures in accordance with applicable DOE regulations, to ensure against access to DOE information to individuals not formally authorized by the DOE to possess such information.

13. Classification

[This provision is applicable if the work to be done involves classified information.]

In the performance of the work under this Agreement, the Agency shall assign or obtain classifications to all documents, material and equipment

originated or generated by the Agency in accordance with classification guidance furnished to the Agency by the DOE. Every subcontract or purchase order issued hereunder involving the origination or generation of classified documents, material or equipment shall include a provision to the effect that in the performance of such subcontract or purchase order, the subcontractor or supplier shall assign classifications to all such documents, material and equipment in accordance with classification guidance furnished to such subcontractor or supplier by the Agency.

14. Technical Progress Reports: Publication

The Agency will make such reports to the DOE on the progress of the work under this Agreement as may be mutually agreed upon.

It is the policy of DOE to make the results of the research, development and demonstration work contemplated under IAs broadly available to the scientific, technical and engineering community and others through the timely publication of reports or journal articles. All publications and engineering materials prepared under the IA will be freely exchanged, made available for public sales, unless classified.

Each IA technical report issued and each task order technical report issued pursuant to an IA will be accompanied by a DOE Form 1332.15 and a statement describing the technical reports delivered.

15. Environmental Safety and Health Requirements

DOE will not assume responsibility for prescribing and/or enforcing environmental safety and health requirements for operators of other Agency facilities engaged in the performance of DOE work.

Attachment: DEAR 952.227-71 Patent Rights - Small Business
Firms or Nonprofit Organizations

Attachment to
Standard General Provisions
for DOE Funds-Out Interagency Agreements

DEAR 952.227-71 - PATENT RIGHTS - SMALL BUSINESS FIRMS OR NONPROFIT ORGANIZATIONS (OTHER THAN M&Os) (APR 1987)

(a) Definitions.

(1) "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code (U.S.C.) or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.).

(2) "Subject Invention" means any invention of the contractor conceived or first actually reduced to practice in the performance of work under this contract, provided that in the case of a variety of plant the date of determination (as defined in section 44(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of contract performance.

(3) "Practical Application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

(4) "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(5) "Small Business Firm" means a small business concern as defined at Section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standard for small business concerns involved in Government procurement and subcontracting, at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.

(6) "Nonprofit Organization" means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

(7) "Patent Counsel" means the Department of Energy (DOE) Patent Counsel assisting the DOE contracting activity.

(b) Allocation of principal rights.

(1) The contractor may retain the entire right, title and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the contractor retains title, the Federal Government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

(2) (Reserved.)

(c) Invention disclosure, election of title and filing of patent application by contractor.

(1) The contractor will disclose each subject invention to the Patent Counsel within two months after the inventor discloses it in writing to contractor personnel responsible for patent matters. The disclosure to the Patent Counsel shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding, to the extent known at the time of the disclosure of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the Patent Counsel, the Contractor will promptly notify the Patent Counsel of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the contractor.

(2) The contractor will elect in writing whether or not to retain title to any such invention by notifying the Patent Counsel within two years of disclosure to the Patent Counsel. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by Patent Counsel to a date that is no more than sixty days prior to the end of the statutory period.

(3) The contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

(4) Requests for extension of the time for disclosure to the Patent Counsel, election, and filing, under subparagraphs (1), (2), and (3) may, at the discretion of the Patent Counsel be granted.

(d) Conditions when the Government may obtain title.

The contractor will convey to the DOE, upon written request, title to any subject invention:

(1) If the contractor fails to disclose or elect title to the subject invention within the times specified in (c) above, or elects not to retain title; provided that the DOE may only request title within 60 days after learning of the failure of the contractor to disclose or elect within the specified times;

(2) In those countries in which the contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the contractor has filed a patent application in a country after the time specified in (c) above prior to its receipt of the written request of the Patent Counsel, the contractor shall continue to retain title in that country; or

(3) In any country in which the contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in a reexamination or opposition proceeding on, a patent on a subject invention.

(e) Minimum rights to contractor and protection of the contractor right to file.

(1) The contractor will retain a nonexclusive, royalty-free license throughout the world in each subject invention to which the Government obtains title except if the contractor fails to disclose the subject invention within the times specified in (c) above. The contractor's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the contractor is a part and includes the right to grant sublicenses of the same scope to the extent the contractor was legally obligated to do so at the time the contract was awarded. The license is transferable only with the approval of DOE except when transferred to the successor of the part of the contractor's business to which the invention pertains.

(2) The contractor's domestic license may be revoked or modified by DOE to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR 404 and 10 CFR 781. This license will not be revoked in that field of use or the geographical areas in which the contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of DOE to the extent the contractor, its licensees, or its domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, DOE will furnish the contractor a written notice of its intention to revoke or modify

the license, and the contractor will be allowed thirty days (or such other time as may be authorized by DOE for good cause shown by the contractor) after the notice to show cause why the license should not be revoked or modified. The contractor has the right to appeal, in accordance with 37 CFR 404 and 10 CFR Part 781, any decision concerning the revocation or modification of its license.

(f) Contractor action to protect the Government's interest.

(1) The contractor agrees to execute or to have executed and promptly deliver to the Patent Counsel all instruments necessary to:

(i) Establish or confirm the rights the Government has throughout the world in those subject inventions to which the contractor elects to retain title, and

(ii) Convey title to DOE when requested under (d) above and to enable the Government to obtain patent protection throughout the world in that subject invention.

(2) The contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the contractor each subject invention made under this contract in order that the contractor can comply with the disclosure provisions of (c) above and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. The disclosure format should require, as a minimum, the information required by (c)(1) above. The contractor shall instruct such employees through the employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to United States or foreign statutory bars.

(3) The contractor will notify the Patent Counsel of any decision not to continue prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

(4) The contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement "This invention was made with Government support under (identify the contract) awarded by the Department of Energy. The Government has certain rights in this invention."

(5) The contractor agrees to:

(i) Upon request, provide a report prior to the close-out of the contract listing all subject inventions or stating that there were none;

(ii) Provide, upon request, a copy of the patent application, filing date, serial number and title, patent number and issue date for any subject invention in any country in which the contractor has applied for a patent; and

(iii) Provide upon request, but not more than annually, listings of all subject inventions which were disclosed to DOE during the applicable reporting period.

(g) Subcontracts.

(1) The contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or a domestic nonprofit organization. The subcontractor will retain all rights provided for the contractor in this clause, and the contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

(2) The contractor will include in all other subcontracts, regardless of tier, for experimental, developmental, demonstration or research work the patent rights clause of 41 CFR 9-9.107-5(a) or 9-9.107-6 as appropriate, modified to identify the parties.

(3) In the case of subcontracts at any tier, when the prime award with DOE was a contract (but not a grant or cooperative agreement) DOE, the subcontractor, and the contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and DOE with respect to those matters covered by this clause; provided however that nothing in this paragraph is intended to confer any jurisdiction under the Contract Disputes Act in connection with proceedings under paragraph (j) of this clause.

(h) Reporting on utilization of subject inventions.

The contractor agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the contractor or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the contractor, and such other data and information as DOE may reasonably specify. The contractor also agrees to provide additional reports as may be requested by DOE in connection with any march-in proceeding undertaken by DOE in accordance with paragraph (j) of this clause. As required by 35 U.S.C. 202(c)(5), DOE agrees it will not disclose such information to persons outside the Government without permission of the contractor.

(i) Preference for United States industry.

Notwithstanding any other provision of this clause, the contractor agrees that neither it nor any assignee will grant to any person the exclusive right

to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by DOE upon a showing by the contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(j) March-in-rights.

The contractor agrees that with respect to any subject invention in which it has acquired title, DOE has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations of DOE to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such a request, DOE has the right to grant such a license itself if DOE determines that:

(1) Such action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

(3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

(4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Special provisions for contracts with nonprofit organizations.

If the contractor is a nonprofit organization it agrees that:

(1) Rights to a subject invention in the United States may not be assigned without the approval of DOE, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the contractor;

(2) The contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when DOE

deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;

(3) The balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

(4) It will make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are small business firms and that it will give a preference to a small business firm when licensing a subject invention if the contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided that the contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the contractor. However, the contractor agrees that the Secretary of Commerce may review the contractor's licensing program and decisions regarding small business applicants, and the contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary of Commerce when the Secretary of Commerce's review discloses that the contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).

(l) Communications. The DOE central point of contact for communications or matters relating to this clause is the Patent Counsel.

ATTACHMENT 3

**INTERAGENCY AGREEMENT WITH THE
U.S. FISH AND WILDLIFE SERVICE**

Internal Use Only

Revision 1 (June 1993)

[Blank Page]

FUNDS-OUT INTERAGENCY AGREEMENT (IA)
Pursuant to authority of Economy Act of 1932 as amended
(31 U.S.C. 1535); PL 95-91;

here:

TYPE OF ACTION:

☐ New Award ☐ Modification ☐ Extension ☐ Other

1. IDENTIFICATION

a. DOE IA No.: DE-A105-930R22088
b. Other agency IA No.:
c. Modification No.: A000
d. Task order No.:
e. PR No.: -05-930R22088.000

3. PROJECT TITLE/DESCRIPTION:

Ecological Surveys

4. AGREEMENT PERIOD (month, day, year)

FROM: 12/31/92 TO: 12/31/95

5. FINANCIAL

a. Accounting and Appropriation Data:

89X0224.91

OR-34-91

250

b. Funding sources

DOE This Action
Agency (AM 10 01)

\$ 207,000

Total Funding

\$ 207,000

c. Method of Payment:

☐ Advance ☒ Reimbursement ☐ Progress

d. Amount obligated this action: \$ 207,000

e. Invoices, if any, submit to:

Department of Energy

P.O. Box 2001

Oak Ridge, Tennessee 37831-8613

ATTN: M. W. Henderson, ER-113

f. Voucher Form to be used:

Quarterly billings on SF-1081 and cite
thereon DE-A105-930R22088

6. DOE PROGRAM OFFICER

Name: Andrea W. Campbell
Environmental Protection Division
Address: DOE Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8739

Telephone Number: (615) 576-9578

7. PERFORMING AGENCY

a. Name: U.S. Department of the Interior
Fish and Wildlife Service
b. Address: Region 1 Office
911 N.E. 11th Avenue
Portland, OR 97232-4181

Attention: Ms. Ruth Scott
Enhancement Division

c. Program Director

Name: Robert P. Smith
U.S. Department of the Interior
Fish and Wildlife Service
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

Telephone Number: (808) 541-2749

8. ISSUING AGENCY:

Department of Energy (DOE)
Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8613

9. PERFORMING AGENCY ACCEPTANCE:

10. DOE CONTRACTING OFFICER:

Name (typewritten): H. Dale Hall

Job (typewritten): Assistant Regional Director

U.S. Fish and Wildlife Service (ES)

Telephone: 503-231-6158

Name (typewritten): Robert E. French
Contracting Officer
Title (typewritten): Environmental Acquisition
Branch
Procurements & Contracts
Division

Interagency Agreement No. DE-AI05-930R22088
Performing Agency: U.S. Fish and Wildlife Service

I. PURPOSE

The U.S. Department of Energy (DOE) has a need for the technical support and assistance of the U.S. Fish and Wildlife Service, Pacific Islands Office, to provide data/information to be used in the assessment of impacts to ecological resources by the proposed Hawaii Geothermal Project. The first ecological survey will be a field survey of forest birds on the Island of Hawaii.

II. SCOPE OF WORK

Support is required from the USFWS for field surveys of native forest birds on the Island of Hawaii. A brief summary of the project is as follows:

The distribution, abundance, and status of native forest birds within the three geothermal resource subzones will be surveyed using the variable circular plot technique (Scott, J. M., S. Mountainspring, F. L. Ramsey, and C. B. Kepler, 1986. Forest Bird Communities of the Hawaiian Islands: Their Dynamics, Ecology, and Conservation). Survey data will be compared with previous surveys to identify trends. In the Kilauea Middle East Rift Geothermal Subzone, forest bird abundance will be surveyed during winter, spring, and summer months. In the Kamalii Geothermal Subzone, forest bird abundance will be surveyed during spring and summer. In the Kapoho Geothermal Subzone, forest bird abundance will be surveyed during the spring.

III. COST

DOE hereby obligates \$207,000 through December 31, 1993, to support the field survey of forest birds on the Island of Hawaii. Subject to the availability of additional funding, it is expected that incremental funding of up to an additional \$500,000 will be added in subsequent years in support of further ecological surveys.

The total estimated cost for accomplishing the scope of work requirements for the field survey of forest birds is based on the following budget:

Bird Surveys \$175,000

	<u>Middle Rift</u>	<u>Kamalii</u>	<u>Kapoho</u>
Salaries	\$50,000	\$30,000	\$20,000
Travel	25,000	15,000	5,000
Equipment*	10,000	7,000	5,000
Miscellaneous (Copter, Public, etc.)	4,000	3,000	1,000
Subtotal	\$89,000	\$55,000	\$31,000

Database Map Digitizing	\$ 7,000
Overhead	\$ 25,000

TOTAL \$207,000

*Notwithstanding Paragraph 9, Capital Equipment, of the Standard General Provisions attached to this interagency agreement, title to the equipment shall remain the property of the USFWS, since DOE will not have any further use for the field survey equipment.

IV. DELIVERABLES/REPORTS

The USFWS shall provide DOE in duplicate several reports detailing survey methods, survey results, distribution maps for each species, density maps for each species, discussion of habitat requirements for each species, biological value of the affected project area for target species, mitigation measures, and digitized database maps of survey results.

Draft interim reports will be delivered to DOE in March, June, and October 1993.

All of the above data, reports, and maps shall be provided to:

Andrea W. Campbell
Environmental Protection Division
DOE Oak Ridge Field Office
P. O. Box 2001
Oak Ridge, Tennessee 38731-8739

Within 30 days after receipt of DOE comments on the October 1993 draft interim report, the USFWS shall provide a final report. The final report shall be distributed in accordance with the attached Reporting Requirements Checklist and Distribution List.

V. DURATION OF AGREEMENT

See Block 4, Face Page.

VI. PROGRAM OFFICERS

DOE and performing agency - See Block 6 and Block 7, Face Page.
Additional project representatives are as follows:

USFWS - Brooks Harper, Technical Contact, (808) 541-2749
Fax (808) 541-2756

USFWS - Ruth Scott, Administrative Contact, (503) 231-6940
Fax (503) 231-6243

DOE - Margie Henderson, Fiscal and Contractual Matters
(615) 576-0714
Fax (615) 576-4474

VII. OBLIGATION OF FUNDS

The total amount obligated by the U.S. Department of Energy is \$207,000.

VIII. OTHER

The attached Standard General Provisions dated July 13, 1992, are incorporated herewith and made a part of this interagency agreement.

U.S. DEPARTMENT OF ENERGY
REPORTING REQUIREMENTS CHECKLISTFORM APPROVED
OMB NO. 1900-1401

PROGRAM/PROJECT TITLE

IDENTIFICATION NUMBER

Ecological Surveys

3. PARTICIPANT NAME AND ADDRESS

U.S. Department of the Interior, Fish and Wildlife Service, Pacific Islands Office,
Honolulu, Hawaii 96850

4. PLANNING AND REPORTING REQUIREMENTS

A. General Management

- ☐ Management Plan
☐ Status Report
☐ Summary Report

B. Schedule/Labor/Cost

- ☐ Milestone Schedule/Plan
☐ Labor Plan
☐ Facilities Capital Cost of Money Factors
☐ Computation
☐ Contract Facilities Capital and Cost of Money
☐ Cost Plan
☐ Milestone Schedule/Status
☐ Labor Management Report
☐ Cost Management Report

C. Exception Reports

- ☐ Conference Record
☐ Hot Line Report

D. Performance Measurement

- ☐ Management Control System Description
☐ WBS Dictionary
☐ Index
☐ Element Definition
☐ Cost Performance Reports
☐ Format 1 - WBS
☐ Format 2 - Function
☐ Format 3 - Baseline

Frequency

E. Financial Incentives

- ☐ Statement of Income and Expense
☐ Balance Sheet
☐ Cash Flow Statement
☐ Statement of Changes in Financial Position
☐ Loan Drawdown Report
☐ Operating Budget
☐ Supplementary Information

Frequency

F. Technical

- ☐ Notice of Energy RD&D Project
 (Required with any of the following)
☐ Technical Progress Report
☐ Draft for Review
☐ Final for Approval
☐ Topical Report
☒ Final Technical Report
 (Due not later than 12/31/93)
☐ Draft for Review
☐ Final for Approval
☐ Software
☐ Other (Specify) _____

A

5. FREQUENCY CODES

- A - As Required
 C - Change to Contractual Agreement
 F - Final (end of effort)

- M - Monthly
 O - Once After Award
 Q - Quarterly

- S - Semi-Annually
 X - With Proposal/Bid/Application or with Significant Changes
 Y - Yearly or Upon Renewal of Contractual Agreement

6. SPECIAL INSTRUCTIONS (ATTACHMENTS)

- ☒ Report Distribution List/Addressees
☐ Reporting Elements
☐ Due Dates

- ☐ Analysis Thresholds
☐ Work Breakdown Structure
☐ Other

7. PREPARED BY (SIGNATURE AND DATE)

Andrea W. Campbell

Andrea W. Campbell

8. REVIEWED BY (SIGNATURE AND DATE)

CONTRACT NUMBER:

DE-A105-93GR22088

Management Plan
Milestone Schedule & Status Report
Cost Plan
Manpower Plan
Contract Management Summary Report
Project Status Report
Cost Management Report
Manpower Management Plan
Conference Record
Milestone Report
Notice of Energy R&D Project (Form DOE 538)
Technical Progress Report
Topical Report
Final Technical Report

ADDRESSEES

NUMBER OF REPORT COPIES

SPECIAL INSTRUCTIONS

Andrea W. Campbell
Environmental Protection Div.
DOE Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee
37831-8739

5

Margie W. Henderson
DOE Oak Ridge Field Office
P.O. Box 2001
Oak Ridge, Tennessee
37831-8613

2

Plus DOE F 1332.15

**STANDARD GENERAL PROVISIONS
FOR DOE FUNDS-OUT INTERAGENCY AGREEMENTS**

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July 13, 1992

STANDARD GENERAL PROVISIONS
FOR DOE FUNDS-OUT INTERAGENCY AGREEMENTS

1. Definitions

For purposes of this agreement, "DOE" means the United States Department of Energy or any duly authorized representative thereof, and "Agency" means the performing agency stated in the agreement or any duly authorized representative thereof. The term "IA" means Interagency Agreement.

2. Cost Chargeable to DOE Funds

Direct cost is the cost that can be directly identified with and charged to the work under this IA subject to the limitations set forth below. Indirect cost, including Agency overhead, shall be limited to the properly allocable portion of cost that are not charged directly to the work, but which can be shown as benefiting the work covered by the IA, as well as other work of the Agency. Examples of direct cost are salaries, wages, technical services, materials, travel and transportation, communications, and any facilities and equipment expressly approved for purchase under the IA. In addition, the following restrictions apply:

- a. Foreign travel costs are allowable only when the trip has received the advance approval of the DOE Contracting Officer.
- b. Reimbursement for expenditures at technical meetings and seminars at which attendance is not required by DOE shall not be allowable without prior written approval of the DOE Contracting Officer.

3. Financing

DOE will finance programs on a reimbursable basis when acceptable to the other agency. If the reimbursable basis is not acceptable, however, then DOE will finance the work by advancing funds through Treasury's On-line Payment and Collection (OPAC) System or by a transfer of appropriated funds. DOE will reimburse or will make available in advance, the amount specified in the IA incorporating these general provisions. Requests for funds shall show separately the amount required for (a) operating costs, (b) capital equipment (as defined in paragraph 9.a.), and (c) acquisition or condemnation of any real property or any facility, or for plant or facility acquisition, construction or expansion.

- a. Vouchers for payment will be submitted on the agreed upon form.
- b. Any funds advanced which are expected to remain beyond the original period of performance for a project which is incomplete, or for which there is an increased scope of work, will remain available to the Agency if the IA is amended by the DOE to extend the period of

performance for the project or any other work beyond the original completion date. Request for such time extensions should be made to the DOE by the Agency at least 30 days prior to the end of the period of performance.

- c. Any advanced funds remaining for a continuing project or any other work remain available for the entire performance period of the project, unless there is a date specified as a required completion date after which no further funds shall be expended.
- d. Any advanced funds remaining after the completion of a research project shall be reimbursed to the DOE.

4. Notice of Cost Approaching Total Estimated Cost

Whenever the Agency has reason to believe that the total cost of the work under this agreement will be substantially greater or less than the presently estimated cost of the work, the Agency shall promptly notify the DOE in writing. The Agency shall also notify the DOE, in writing, when the aggregate of cost incurred and outstanding commitments allowable under this agreement is equal to 90 percent (or such other percentage as the DOE may from time to time establish by notice to the Agency) of the presently estimated total cost under this agreement. When the cost incurred and outstanding commitments equal 100 percent of such estimated total cost, the Agency shall make no further commitments or expenditures (except to meet existing commitments) and shall be excused from further performance of the work unless and until the DOE shall increase the total estimated cost to be incurred with respect to this agreement.

5. Excess Funds

The Agency shall take prompt action to return to the DOE any funds determined to be excess to the work during the performance of the work and any unobligated funds after the completion of the agreement or as of September 30 each year unless the agreement has been extended and any unused balances have been carried forward in the extension. In a joint venture project where the performing Agency deposits the advance in the OPAC System, any unobligated balances shall be returned to the DOE before the cutoff date at the close of each fiscal year.

6. Financial Reports

The agency shall furnish the DOE, not later than 15 days after the close of each reporting period, monthly or other periodic cost or financial reports in such form and detail as may be required by the DOE. Any cost incurred for capital equipment or other assets shall be supported by a list showing the description, make, any serial number, and the cost of each item acquired.

7. Accounting Records

The Agency shall accumulate and account for obligations and cost incurred in connection with the work being performed under this agreement in such form and detail as may be required by the DOE.

8. Termination

The DOE may terminate this agreement upon 30 days written notice of such termination addressed to the Agency. In the event of such termination, the Agency shall be reimbursed, to the extent permitted, for obligations actually incurred to the effective date of termination and for commitments extending beyond the effective date of termination to a date not later than the date upon which the agreement would have expired if not terminated under this paragraph, which the Agency, in the exercise of due diligence, is unable to cancel. Payments under this agreement, including payment under this provision, shall not exceed the ceiling amount elsewhere specified in this agreement.

9. Capital Equipment

- a. "Capital Equipment" means each item of equipment which is expected to have an extended period of service, generally two years or more, and has sufficient monetary value, generally of \$5000 or more, to justify continuing accounting records for the item.
- b. Unless expressly authorized by the contracting officer in advance, the Agency shall not be reimbursed or use funds made available under this agreement for the procurement or fabrication of capital equipment.
- c. If capital equipment is purchased or otherwise acquired pursuant to an authorization under Paragraph (b) above, except as may be otherwise agreed by the DOE and the Agency:
 - (1) the title thereto shall vest in the DOE;
 - (2) the Agency shall be responsible for the maintenance and safeguarding thereof; and
 - (3) the Agency shall maintain a record in such a manner as to insure adequate control and accounting satisfactory to the DOE of capital equipment procured or fabricated.

10. Real Property and Facilities.

- a. Unless expressly authorized by the contracting officer in advance, the Agency shall not be reimbursed or use funds made available under this agreement for the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion.

b. If the Agency acquires or condemns any real property or any facility or acquires, constructs or expands any plant or facility pursuant to an authorization under (a) above, except as may be otherwise agreed by the DOE and the Agency:

- (1) the title thereto shall vest in the DOE, and property accountability and control shall become the responsibility of DOE;
- (2) the Agency shall be responsible for the maintenance and safeguarding thereof; and
- (3) the Agency shall maintain a record thereof in such a manner as to insure adequate control and accounting satisfactory to the DOE.

11. Patents and Technical Data.

It is understood and agreed by the Department of Energy (DOE) and the Agency that the patent policy to be employed in any particular cooperative undertaking between the parties which includes research, development, or demonstration work and is supported in whole or in part by DOE funding will be as set forth below:

a. In any contract or task order under a contract where the Agency has the work performed by an Agency contractor (other than a small business firm or nonprofit organization) and the work is not severable from that funded by the Agency, the Agency will incorporate the Patent Rights clause of DOEPR §9-9.107-5(a), except for certain consultant contracts where the short form clause of DOEPR §9-9.107-6 is applicable.

Where, however, the contract or task order is with a small business firm or nonprofit organization, the patent right clause used in the contract shall be in accordance with the provisions of P.L. 96-517. If the Agency regulations provide such a clause, then that clause may be used. If this is not the case, then the attached clause entitled, "Patent Rights (Small Business Firms or Nonprofit Organizations)" shall be used in the contract.

To enable the Agency to efficiently administer the Patent Rights clause, the definition of Patent Counsel in the clause shall be replaced with the following definition:

"Patent Counsel" means the Department of Energy Patent Counsel assisting the DOE activity funding the contract. Items pertaining to the administration of this clause, including invention reports, greater rights, and waiver requests, shall be sent to the Patent Counsel via the Agency Contracting Officer.

b. Offerors and prospective contractors (other than small business firms and nonprofit organizations) shall be provided with notice of and the

opportunity to request, in accordance with applicable DOE regulations, at any time prior to the effective date of the contract or within 30 days thereafter, an advance waiver of all or any part of the rights of the United States with respect to inventions which may be conceived or first actually reduce to practice in the course of or under the contract. The Agency Contracting Officer shall promptly forward such requests to the DOE Patent Counsel and will notify the contractor whether such request is granted in whole or in part.

- c. Where an Agency contractor or subcontractor will not accept patent provisions provided by DOE, the Agency shall not proceed with the contract or subcontract without written approval of the DOE Patent Counsel.
- d. [This paragraph d. applies if IA is with a non-DOD agency.]
In any contract or task order under a contract where the Agency has the work performed by Agency personnel, either military or civilian, at an Agency installation or that of an Agency contractor. any inventions, or discoveries made or conceived in the course of or in connection with such work shall be reported and handled in accordance with standard Agency procedure. All such inventions, however, shall also be reported to DOE and the Agency will consult with DOE prior to making any determination in which the Government would obtain less than the entire right, title and interest in such inventions.
- d. [This paragraph d. applies if IA is with a DOD agency.]
In any contract or task order under a contract where the Agency has the work performed by Agency personnel, either military or civilian, at an Agency installation or that of an Agency contractor. any inventions, or discoveries made or conceived in the course of or in connection with such work shall be reported and handled in accordance with standard Agency procedure.
- e. It is recognized that during the course of the work under this agreement, the Agency or its employees, consultants, or contractors may, from time to time, desire to publish, within the limits of security requirements, information regarding scientific or technical developments made or conceived in the course of or under this agreement. In order that public disclosure of such information will not adversely affect the patent interests of DOE or the Agency, patent approval for release and publication shall be secured from DOE prior to any such release or publication.

It is recognized that there is a close relationship between DOE's patent and data policies and DOE's mission of achieving wide-spread availability and competitive commercial utilization of the benefits of DOE-funded research, development, and demonstration activities in the shortest practical time. Accordingly, the Agency shall obtain substantially the same rights in data as those set forth in DOEPR §9-9.200 where such is: (a) specifically requested by DOE; or (b) part of the terms and conditions of a patent waiver. Additionally, whenever the total estimated cost of a DOE-funded contract under this agreement is over \$5,000,000,

the technical data provisions to be included in the contract shall be approved by DOE Patent Counsel.

12. Security of Restricted Data.

[This provision is applicable if the work to be done involves classified information.]

a. It is the Contracting Agency's duty to safeguard restricted data, formerly restricted data and other classified information. The Agency shall, in accordance with DOE security regulations and requirements, be responsible for safeguarding restricted data, formerly restricted data and other classified information, and protecting against sabotage, espionage, loss and theft, the classified documents and material in the Agency's possession in connection with the performance of work under this agreement. Except as otherwise expressly provided in this agreement, the Agency shall upon completion or termination of this agreement, transmit to DOE any classified matter in the possession of the Agency or any person under the Agency's control in connection with performance of this agreement. If retention by the Agency of any classified matter is required after the completion or termination of the agreement and such retention is approved by the DOE, the Agency will complete a certificate of possession to be furnished to DOE specifying the classified matter to be retained. The certification shall identify the items and types or categories of matter retained, the conditions governing the retention of the matter and the period of retention, if known. If the retention is approved by the DOE, the security provisions of the agreement will continue to be applicable to the matter retained.

b. Regulations

The Agency agrees to conform to all security regulations and requirements of DOE.

c. Definition of Restricted Data

The term "restricted data," as used in this clause, means all data concerning: (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the restricted data category pursuant to Section 142 of the Atomic Energy Act of 1954.

d. Definition of Formerly Restricted Data

The term "formerly restricted data," as used in this clause, means all data removed from the restricted data category under Section 142 d of the Atomic Energy Act of 1954, as amended.

e. Security Clearance of Personnel

The Agency shall not permit any individual to have access to restricted data, formerly restricted data, or other classified information, except in accordance with the Atomic Energy Act of 1954, as amended, and the DOE's regulations or requirements applicable to the particular type or category of classified information to which access is required.

f. Criminal Liability

It is understood that disclosures of restricted data, formerly restricted data or other classified matter relating to the work or services ordered hereunder to any person not entitled to receive it, or failure to safeguard any restricted data, formerly restricted data or any other classified matter in connection with work under this agreement, may subject any representatives of the Agency, its agents, employees or subcontractors to criminal liability under the laws of the United States. (See the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2100 et seq.; 12 U.S.C. 793 and 794; and Executive Order 12356.)

g. Contracts and Purchase Orders

Except as otherwise authorized in writing by DOE, the Agency shall insert provisions similar to the foregoing in all contracts and purchase orders under this agreement.

h. Security Requirements for Proprietary Energy Data

The Agency shall safeguard DOE limited official use information, or other proprietary or sensitive data (including material relating to patents), from unauthorized access, disclosure, modification or destruction in accordance with applicable DOE security regulations and applicable orders and directives.

i. Computer Security Requirements

In the event that this Agreement involves utilization of a DOE computer system, the Agency will establish administrative, technical and physical security procedures in accordance with applicable DOE regulations, to ensure against access to DOE information to individuals not formally authorized by the DOE to possess such information.

13. Classification

[This provision is applicable if the work to be done involves classified information.]

In the performance of the work under this Agreement, the Agency shall assign or obtain classifications to all documents, material and equipment

originated or generated by the Agency in accordance with classification guidance furnished to the Agency by the DOE. Every subcontract or purchase order issued hereunder involving the origination or generation of classified documents, material or equipment shall include a provision to the effect that in the performance of such subcontract or purchase order, the subcontractor or supplier shall assign classifications to all such documents, material and equipment in accordance with classification guidance furnished to such subcontractor or supplier by the Agency.

14. Technical Progress Reports: Publication

The Agency will make such reports to the DOE on the progress of the work under this Agreement as may be mutually agreed upon.

It is the policy of DOE to make the results of the research, development and demonstration work contemplated under IAs broadly available to the scientific, technical and engineering community and others through the timely publication of reports or journal articles. All publications and engineering materials prepared under the IA will be freely exchanged, made available for public sales, unless classified.

Each IA technical report issued and each task order technical report issued pursuant to an IA will be accompanied by a DOE Form 1332.15 and a statement describing the technical reports delivered.

15. Environmental Safety and Health Requirements

DOE will not assume responsibility for prescribing and/or enforcing environmental safety and health requirements for operators of other Agency facilities engaged in the performance of DOE work.

**Attachment: DEAR 952.227-71 Patent Rights - Small Business
Firms or Nonprofit Organizations**

Attachment to
Standard General Provisions
for DOE Funds-Out Interagency Agreements

DEAR 952.227-71 PATENT RIGHTS - SMALL BUSINESS FIRMS OR NONPROFIT ORGANIZATIONS (OTHER THAN M&Os) (APR 1987)

(a) Definitions.

(1) "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code (U.S.C.) or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.).

(2) "Subject Invention" means any invention of the contractor conceived or first actually reduced to practice in the performance of work under this contract, provided that in the case of a variety of plant the date of determination (as defined in section 44(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of contract performance.

(3) "Practical Application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

(4) "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

(5) "Small Business Firm" means a small business concern as defined at Section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standard for small business concerns involved in Government procurement and subcontracting, at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.

(6) "Nonprofit Organization" means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

(7) "Patent Counsel" means the Department of Energy (DOE) Patent Counsel assisting the DOE contracting activity.

(b) Allocation of principal rights.

(1) The contractor may retain the entire right, title and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the contractor retains title, the Federal Government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

(2) (Reserved.)

(c) Invention disclosure, election of title and filing of patent application by contractor.

(1) The contractor will disclose each subject invention to the Patent Counsel within two months after the inventor discloses it in writing to contractor personnel responsible for patent matters. The disclosure to the Patent Counsel shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding, to the extent known at the time of the disclosure of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the Patent Counsel, the Contractor will promptly notify the Patent Counsel of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the contractor.

(2) The contractor will elect in writing whether or not to retain title to any such invention by notifying the Patent Counsel within two years of disclosure to the Patent Counsel. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by Patent Counsel to a date that is no more than sixty days prior to the end of the statutory period.

(3) The contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

(4) Requests for extension of the time for disclosure to the Patent Counsel, election, and filing, under subparagraphs (1), (2), and (3) may, at the discretion of the Patent Counsel be granted.

(d) Conditions when the Government may obtain title.

The contractor will convey to the DOE, upon written request, title to any subject invention:

(1) If the contractor fails to disclose or elect title to the subject invention within the times specified in (c) above, or elects not to retain title; provided that the DOE may only request title within 60 days after learning of the failure of the contractor to disclose or elect within the specified times;

(2) In those countries in which the contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the contractor has filed a patent application in a country after the time specified in (c) above prior to its receipt of the written request of the Patent Counsel, the contractor shall continue to retain title in that country; or

(3) In any country in which the contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in a reexamination or opposition proceeding on, a patent on a subject invention.

(e) Minimum rights to contractor and protection of the contractor right to file.

(1) The contractor will retain a nonexclusive, royalty-free license throughout the world in each subject invention to which the Government obtains title except if the contractor fails to disclose the subject invention within the times specified in (c) above. The contractor's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the contractor is a part and includes the right to grant sublicenses of the same scope to the extent the contractor was legally obligated to do so at the time the contract was awarded. The license is transferable only with the approval of DOE except when transferred to the successor of the part of the contractor's business to which the invention pertains.

(2) The contractor's domestic license may be revoked or modified by DOE to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR 404 and 10 CFR 781. This license will not be revoked in that field of use or the geographical areas in which the contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of DOE to the extent the contractor, its licensees, or its domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, DOE will furnish the contractor a written notice of its intention to revoke or modify

the license, and the contractor will be allowed thirty days (or such other time as may be authorized by DOE for good cause shown by the contractor) after the notice to show cause why the license should not be revoked or modified. The contractor has the right to appeal, in accordance with 37 CFR 404 and 10 CFR Part 781, any decision concerning the revocation or modification of its license.

(f) Contractor action to protect the Government's interest.

(1) The contractor agrees to execute or to have executed and promptly deliver to the Patent Counsel all instruments necessary to:

(i) Establish or confirm the rights the Government has throughout the world in those subject inventions to which the contractor elects to retain title, and

(ii) Convey title to DOE when requested under (d) above and to enable the Government to obtain patent protection throughout the world in that subject invention.

(2) The contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the contractor each subject invention made under this contract in order that the contractor can comply with the disclosure provisions of (c) above and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. The disclosure format should require, as a minimum, the information required by (c)(1) above. The contractor shall instruct such employees through the employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to United States or foreign statutory bars.

(3) The contractor will notify the Patent Counsel of any decision not to continue prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

(4) The contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement "This invention was made with Government support under (identify the contract) awarded by the Department of Energy. The Government has certain rights in this invention."

(5) The contractor agrees to:

(i) Upon request, provide a report prior to the close-out of the contract listing all subject inventions or stating that there were none;

(ii) Provide, upon request, a copy of the patent application, filing date, serial number and title, patent number and issue date for any subject invention in any country in which the contractor has applied for a patent; and

(iii) Provide upon request, but not more than annually, listings of all subject inventions which were disclosed to DOE during the applicable reporting period.

(g) Subcontracts.

(1) The contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or a domestic nonprofit organization. The subcontractor will retain all rights provided for the contractor in this clause, and the contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

(2) The contractor will include in all other subcontracts, regardless of tier, for experimental, developmental, demonstration or research work the patent rights clause of 41 CFR 9-9.107-5(a) or 9-9.107-6 as appropriate, modified to identify the parties.

(3) In the case of subcontracts at any tier, when the prime award with DOE was a contract (but not a grant or cooperative agreement) DOE, the subcontractor, and the contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and DOE with respect to those matters covered by this clause; provided however that nothing in this paragraph is intended to confer any jurisdiction under the Contract Disputes Act in connection with proceedings under paragraph (j) of this clause.

(h) Reporting on utilization of subject inventions.

The contractor agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the contractor or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the contractor, and such other data and information as DOE may reasonably specify. The contractor also agrees to provide additional reports as may be requested by DOE in connection with any march-in proceeding undertaken by DOE in accordance with paragraph (j) of this clause. As required by 35 U.S.C. 202(c)(5), DOE agrees it will not disclose such information to persons outside the Government without permission of the contractor.

(i) Preference for United States industry.

Notwithstanding any other provision of this clause, the contractor agrees that neither it nor any assignee will grant to any person the exclusive right

to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by DOE upon a showing by the contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(j) March-in-rights.

The contractor agrees that with respect to any subject invention in which it has acquired title, DOE has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations of DOE to require the contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such a request, DOE has the right to grant such a license itself if DOE determines that:

(1) Such action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

(3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

(4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Special provisions for contracts with nonprofit organizations.

If the contractor is a nonprofit organization it agrees that:

(1) Rights to a subject invention in the United States may not be assigned without the approval of DOE, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the contractor;

(2) The contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when DOE

deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;

(3) The balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

(4) It will make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are small business firms and that it will give a preference to a small business firm when licensing a subject invention if the contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided that the contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the contractor. However, the contractor agrees that the Secretary of Commerce may review the contractor's licensing program and decisions regarding small business applicants, and the contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary of Commerce when the Secretary of Commerce's review discloses that the contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).

(l) Communications. The DOE central point of contact for communications or matters relating to this clause is the Patent Counsel.

Department of Energy

Oak Ridge Operations

P.O. Box 2001

Oak Ridge, Tennessee 37831-8614

June 4, 1993

Ms. Ruth Scott, Administrative Contact
U.S. Department of Interior
Fish and Wildlife Service
Region 1 Office
911 N. E. 11th Avenue
Portland, OR 97232-4181

Dear Ms. Scott:

**ECOLOGICAL SURVEYS (INTERAGENCY AGREEMENT DE-AI05-930R22088 -
MODIFICATION NO. A001)**

Enclosed are two copies of the subject Interagency Agreement which have been signed on behalf of the Department of Energy.

If the Interagency Agreement is acceptable, please have the two enclosed copies executed by the proper official on behalf of your agency and return one fully executed original to me. You should retain one fully executed original for your files.

Enclosed for your utilization is the DOE form:

DOE F 1332.15, DOE and Major Contractor Recommendations for Announcement and Distribution of Documents. All scientific and technical information reports must be accompanied by a completed DOE F 1332.15.

If you have any questions, please contact me at (615) 576-0714.

Sincerely,

RL EGS
for Margie W. Henderson
Agreements Administration Specialist
Research Integration Branch
Energy Programs Division

ER-113:Henderson

Enclosures:
Interagency Agreement (2)
DOE F 1332.15 (2)

U.S. DEPARTMENT OF ENERGY
INTERAGENCY AGREEMENT FACE PAGE

FUNDS-OUT INTERAGENCY AGREEMENT (IA)

Pursuant to authority of Economy Act of 1932 as amended
(U.S.C. 1535); PL 95-91;
other:

2. TYPE OF ACTION:

☐ New Award ☒ Modification ☐ Extension ☐ Other

3. PROJECT TITLE/DESCRIPTION:

Ecological Surveys

4. AGREEMENT PERIOD (month, day, year)

FROM: 12/31/92

TO: 01/31/95

5. FINANCIAL

a. Accounting and Appropriation Data:

89X0224.91
OR-34-91
250

b. Funding sources

Basic Agreement \$ 207,000

DOE This Action \$ 424,000

Agency (AM 10 01)

Total Funding \$ 631,000

c. Method of Payment:

☐ Advance ☒ Reimbursement ☐ Progress

d. Amount obligated this action: \$ 424,000

e. Invoices, if any, submit to:

Department of Energy
P.O. Box 2001
Oak Ridge, Tennessee 37831-8614
ATTN: M. W. Henderson, ER-113

f. Voucher Form to be used:

Quarterly billing on SF-1081 and cite
thereon DE-A105-930R22088

1. IDENTIFICATION

a. DOE IA No.: DE-A105-930R22088
b. Other agency IA No.:
c. Modification No.: A001
d. Task order No.:
e. PR No.: 05930R22088.001

6. DOE PROGRAM OFFICER

Name: Judith C. Stroud
Office of Assistant Manager
Address: Energy Research and Development
DOE Oak Ridge Operations Office
P. O. Box 2001
Oak Ridge, Tennessee 37831-8600

Telephone Number:
(615) 576-1836

7. PERFORMING AGENCY

a. Name: U.S. Department of Interior
Fish and Wildlife Service
b. Address: Region 1 Office
911 N.E. 11th Avenue
Portland, OR 97232-4181

Attention: Ms. Ruth Scott

Enhancement Division

c. Program Director

Name: Robert P. Smith
Address: U.S. Department of Interior
Fish and Wildlife Service
Pacific Islands Office
Honolulu, Hawaii 96850

Telephone Number:
(808) 541-2749

8. ISSUING AGENCY:

Department of Energy (DOE)
Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8614

9. PERFORMING AGENCY ACCEPTANCE:

(signature)

(date)

Name (typewritten):

Title (typewritten):

Telephone:

10. DOE CONTRACTING OFFICER:

(signature)

6/4/93
(date)

Name (typewritten): Charles D. Crowe

Title (typewritten): Contracting Officer

Interagency Agreement No.: DE-A105-930R22088
Performing Agency: U.S. Fish and Wildlife Service
Modification: A001

I. PURPOSE

The purpose of this modification is to (1) provide additional funding in the amount of \$424,000, bringing the total DOE funding to \$631,000; (2) expand the scope of work, (3) change the expiration date of the agreement to January 31, 1995; and (4) recognize a change in the DOE Program Officer from Andrea W. Campbell to Judith C. Stroud. Ms. Campbell will remain the DOE technical contact.

II. SCOPE OF WORK

Task 1 - Project Coordination and Document Review

The Fish and Wildlife Service (FWS) shall hire a Project Coordinator to oversee all aspects of the Hawaii Geothermal Project including coordinating all biological field studies and keeping the Field Supervisor/Deputy Field Supervisor apprised of significant issues relative to these studies. The Project Coordinator will represent the FWS at meetings with land owners, federal and state agencies, environmental groups and the public at large.

The Project Coordinator shall perform a literature review of both published and unpublished documents prepared by the FWS and other sources with reference to environmental issues related to the lowland rainforest in Puna, adjacent areas, transmission corridors, and the proposed Hawaii Geothermal Project. A list of citations with annotated abstracts describing the contents of these data sources shall be provided to the Department of Energy. Each abstract shall include an evaluation of the cited information as to its relevancy and quality for use in the Hawaii Geothermal Project federal EIS. Two copies of all relevant documents shall be provided to the DOE.

Budget:

Personnel

Project Coordinator (11 months)	\$ 40,000
OVERHEAD	\$ 8,000
TOTAL	\$ 48,000

Task 2 - Endangered Waterbird Surveys in the Geothermal Transmission Corridor Molokai and Oahu

Purpose: Survey endangered waterbird habitats along the Hawaii geothermal transmission corridor on Molokai and Oahu.

Products:

- a. National Wetlands Inventory maps of wetlands found along the transmission corridor on Molokai and Oahu.
- b. Maps depicting endangered waterbird distribution along the transmission corridor.
- c. Discussion of habitat requirements and values of the affected wetlands along the transmission corridor.
- d. Analysis of potential impacts to endangered waterbirds from transmission corridor construction and operation.

Budget:

Molokai Field Survey (6 biological days @ \$450/BD)	\$ 2,500
Oahu Field Surveys (2 biological days @ \$450/BD)	900
Air Fare	300
Per Diem	1,400
Equipment	400
Aerial Photography Interpretation	500
Report Writing	4,500
Helicopter	2,000
Subtotal	\$ 12,500
OVERHEAD	\$ 2,500
TOTAL	\$ 15,000

Task 3 - Botanical Surveys in the Kilauea East Rift Zone

The vegetation of the Kilauea East Rift Zone was systematically surveyed in 1979 during the U.S. Fish and Wildlife Service's state-wide Hawaii Forest Bird Survey (HFBS) (Scott et al. 1986). This vegetation survey was a descriptive characterization of the canopy, understory, and habitat quality at each of the 500 bird observation stations. These data provided habitat information used to address the requirements and distributions of Hawaii's forest birds. In addition, this information was used in the development of detailed vegetation maps (1:24,000 scale, Jacobi 1989). The habitat mapping and species lists obtained during this survey form an outstanding baseline documentation of the area. This baseline will form the cornerstone of any efforts to assess vegetation changes thought to be caused by natural processes or man-made activities. Additional botanical surveys were conducted in 1984 throughout all three subzones as part of the initial environmental assessments of geothermal power development (Char, Lamoureux, and Berger 1985).

Objectives:

New studies are proposed herein to document the current status of vegetation in the project area and to assess future impacts of geothermal development on the native vegetation. Specific objectives of this research are:

1. determine the current status of vegetation within the proposed geothermal development area;
2. assess vegetation changes which may have occurred since the 1979 HFBS vegetation surveys. Data will be analyzed to examine forest-wide changes and changes associated with the past development of roads, well-pads, and drilling sites;
3. provide habitat characterization of bird and insect populations by establishing integrated monitoring plots which monitor bird, insect, and plant distributions at the same sampling points.

Procedures:

1. Determine the current status of vegetation. Vegetation monitoring transects will be established throughout the development area at roughly 2 mile intervals, with the canopy, understory, and habitat being evaluated at 440 foot intervals. The result will be a detailed and replicable characterization of the vegetation of the geothermal development area. Non-systematic surveys for

special interest species (endangered, threatened, or rare) will be conducted as dictated by aerial and map analysis. Previously prepared vegetation maps will be updated and prepared.

2. Assess vegetation changes which may have occurred since the 1979 HFBS vegetation surveys. Eight transects from the 1979 HFBS will be re-established by the Bird Survey Teams (Tr. 35-42). Plants will be surveyed at each station using the same techniques used in the 1979 survey. This will allow direct comparison of the 1979 and 1993 vegetation surveys. Additional transects will be established along the True-Mid Pacific access road to access vegetation changes associated with existing roads, well-pads, and drilling sites. Special attention will be paid to the distribution of invasive alien weed species.
3. Provide habitat characterization of bird and insect populations. By integrating portions of the bird, insect, and plant surveys so that they sample the same points, it will be possible to not only provide an overall picture biotic distributions, but it will be possible to begin understanding the relationships between these three groups of organisms.

Resource Estimate:

1. Transect layout. No cost. Transects will be laid out by the Bird Survey Teams.
2. Vegetation sampling. Vegetation will be sampled using 2-person teams:
 - a. Along transects. Teams can cover approximately 20 stations per day. The total number of stations is estimated at 500. It will take approximately 2 team-months to conduct these surveys.
 - b. Special interest botanical surveys. It will take approximately 2 team-months to survey the entire project area for rare or endangered plants.
3. Vegetation map reverification. It will take approximately 1 person-month to verify existing vegetation maps and to create additional maps.
4. Data analysis and reporting.
 - a. Data input. Approximately 7 person weeks.

- b. Establish linkage between 1979 and 1993 data records. Approximately 4 person-weeks. Includes sorting out nomenclatural changes and transfer of data between computer platforms.
- c. Data interpretation. Approximately 4 person-weeks.
- d. Report preparation. Approximately 4 person-weeks.

Budget:

Personnel

- * Office Management (Harper) 3 weeks
- Office Botanist (Mehrhoff) 1 month
- Vegetation Group Leader 10 months
- Technician, Field 1 5 months
- Technician, Field 2 3 months
- Technician, Data Input 3 months
- Project Coordinator (See Document Review Proposal)
- * Office Management time for all aspects of the Hawaii Geothermal Project are included in this time cost.

Salaries

Office Management (Harper)	\$ 3,000
Office Botanist (Mehrhoff)	5,000
Vegetation Group Leader	36,000
Technician, Field 1	14,000
Technician, Field 2	8,500
Technician, Data input	8,500

Subtotal \$ 75,000

Contract

Special interest survey	\$ 20,000
Hawaii Heritage Program reports	2,000
Bishop Museum (plant identification)	5,000

Subtotal \$ 27,000

Travel

Field per diem 8 person-months at \$15/day	\$ 2,700
Air (30 round trips @ \$90)	2,700
Car rental (30 days @ \$30)	900
Per diem (30 days @ \$125)	3,700
Subtotal	\$ 10,000

OPERATING EXPENSES

Camping equipment	\$ 1,000
Supplies	2,000
Vehicle rental	15,000
* Computer purchases (2)	7,000
* Printer	2,000
Geographic Positioning Devices (2)	7,000
* Cellular telephone	500
* Camera	800
* Video camera	1,000
Helicopter time	4,000
Office rental (10 months @ \$1,000)	10,000
Map production	2,000
Photocopy	500
Telephone	1,200
Subtotal	\$ 54,000
TOTAL	\$166,000
OVERHEAD	\$ 33,000
GRAND TOTAL	\$199,000

* Since these are sensitive items DOE will make a decision as to the disposition of these items at the terminatin of this agreement.

Task 4 Hawaiian Hawk, Hawaiian Bat and Newell's Shearwater Survey in the Puna Geothermal Subzones

Objectives:

At present, little specific data exists for the presence of the study species within the project area. This study will determine whether these species actually exist within the project area and also if there are breeding populations. The documentation of birds either passing through the study area of nesting are both significant events for the project. Our efforts will determine:

1. the presence/absence of the study species within the project area and the approximate population size;
2. the breeding status of the species with the project area and the success of breeding efforts, if determinable;
3. possible effects by introduced predators, or other possible limiting factors to the populations.

Procedures:

The methods used for this aspect of the project will correspond closely with the forest bird survey portion. Use of techniques and personnel will be closely tied together; however, the studies will all be treated as separate entities administratively and logistically. The overlap of personnel will not be at the expense of the forest bird work, but rather in addition to the work that is already proposed.

We propose to use the forest birds transect data as the initial starting point to determine population status for the shearwater and hawk. At the time that detections are recorded, a field crew devoted entirely to the hawk, shearwater and bat will go back to the locations for additional survey work. Specifically, if flight corridors, in the case of the shearwater, or possible nesting activity, for the hawk, are recorded by the forest bird survey team, the core group will return to those areas for follow-up surveys and location of nest sites.

The bat work will be conducted separately from the forest bird surveys. The surveys will be the responsibility of the core group and also may rely on portions of the forest bird survey teams during some parts of the bat surveys. The core group will conduct surveys at dawn and dusk to observe presence/absence of the bats. After initial detection, further surveys will be conducted to determine roost locations or other important breeding areas for the bats.

The work will begin in June and continue through October, or possibly later, depending on the amount of nesting territories that are found for each of the species. If several nests or roosts are being followed, the field crew may continue work until December.

Budget:

The following is an estimate of the cost to conduct the shearwater, hawk, and bat portions of the study.

Personnel:

Office Management (Covered under Botanical Surveys)	\$ 0
Office Biologist (1 month)	4,000
Group Leader (8 months)	29,000
Assistant Leader (8 months)	22,500
Field Biologist/Technician (5 months)	17,000
Field Biologist/Technician (5 months)	17,000
Field Biologist/Technician (5 months)	17,000
Project Coordinator (See Document Review Proposal)	

Subtotal	\$106,500
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Equipment:

Binoculars, spotting scopes, backpacks, and camping equipment	\$ 10,000
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Transportation:

Two 4-wheel drive vehicles, leased	\$ 10,000
Inter-island Coupons	2,000

Subtotal	\$ 12,000
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Lodging	1,000
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Helicopter - \$550 per hour. 10 hours X 550	\$ 5,500
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TOTAL	\$135,000
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OVERHEAD	\$ 27,000
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GRAND TOTAL	\$162,000
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III. COST

DOE hereby obligates \$424,000 in support of the ecological surveys through January 31, 1995. The current obligation is based on the following budget estimates:

Project Coordination and Document Review	\$ 48,000
Endangered Waterbird Surveys	15,000
Botanical Surveys	199,000
Hawaiian Hawk, Hawaiian Bat, and Newell's Shearwater Surveys	162,000
TOTAL	\$424,000

A breakdown of each budget estimate is shown under the respective task as outlined in the Scope of Work.

IV. DELIVERABLES/REPORTS

Task 1 - Project Coordination and Document Review

Draft Literature review shall be provided 60 days after approval of the proposal.

Task 2 - Endangered Waterbird Surveys in the Geothermal Transmission Corridor Molokai and Oahu

Draft report with survey results shall be provided by October 30, 1993.

Task 3 - Botanical Surveys in the Kilauea East Rift Zone

Draft reports with survey results shall be provided by January 30, 1994.

Task 4 - Hawaiian Hawk, Hawaiian Bat and Newell's Shearwater Survey in the Puna Geothermal Subzones

Draft reports with survey results shall be provided by January 30, 1994.

The above listed draft reports shall be provided to:

Andrea W. Campbell
Environmental Protection Division
DOE Oak Ridge Operations Office
P. O. Box 2001
Oak Ridge, TN 37831-8739

Final reports shall be distributed in accordance with the attached Reporting Requirements Checklist and Distribution List as follows:

- Task 1 - 15 days after receipt of DOE comments.
- Task 2 - 30 days after receipt of DOE comments.
- Task 3 - 30 days after receipt of DOE comments.
- Task 4 - 30 days after receipt of DOE comments.

V. DURATION OF AGREEMENT

See Block 4, Face Page.

VI. PROGRAM OFFICERS

DOE and performing agency - See Block 6 and Block 7, Face Page.
Additional project representatives are as follows:

USFWS - Brooks Harper, Technical Contact, (808) 541-2749
FAX (808) 541-2756

USFWS - Ruth Scott, Administrative Contact, (503) 231-6940
FAX (503) 231-6243

DOE - Andrea W. Campbell, Technical Contact, (615) 576-9578
FAX (615) 576-0746

DOE - Margie W. Henderson, Fiscal and Contractual Matters,
(615) 576-0714
FAX (615) 576-4474

VII. OBLIGATION OF FUNDS

The total amount obligated by the U.S. Department of Energy is \$631,000. As noted in Block 5.b., Face Page, the current obligation is \$424,000.

Section VIII shall remain unchanged.

<p>PROGRAM/PROJECT TITLE</p> <p>Ecological Surveys</p>	<p>IDENTIFICATION NUMBER</p> <p>DE-AI05-93OR22088</p>																				
<p>3. PARTICIPANT NAME AND ADDRESS</p> <p>U.S. Department of Interior, Fish and Wildlife Service, Portland, OR 97232-4181</p>																					
<p>4. PLANNING AND REPORTING REQUIREMENTS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 45%;">A. General Management</th> <th style="width: 5%;">Frequency</th> <th style="width: 45%;">E. Financial Incentives</th> <th style="width: 5%;">Frequency</th> </tr> </thead> <tbody> <tr> <td> ☐ Management Plan ☐ Status Report ☒ Summary Report (Monthly Cost by Task) </td> <td>M</td> <td> ☐ Statement of Income and Expense ☐ Balance Sheet ☐ Cash Flow Statement ☐ Statement of Changes in Financial Position ☐ Loan Drawdown Report ☐ Operating Budget ☐ Supplementary Information </td> <td></td> </tr> <tr> <td> B. Schedule/Labor/Cost ☐ Milestone Schedule/Plan ☐ Labor Plan ☐ Facilities Capital Cost of Money Factors Computation ☐ Contract Facilities Capital and Cost of Money ☐ Cost Plan ☐ Milestone Schedule/Status ☐ Labor Management Report ☐ Cost Management Report </td> <td></td> <td> F. Technical ☐ Notice of Energy RD&D Project (Required with any of the following) ☒ Technical Progress Report (Mid-point of each Task) A ☐ Draft for Review ☐ Final for Approval ☒ Topical Report ☒ Final Technical Report (Tasks 1,2,3,4) F ☒ Draft for Review (Tasks 1,2,3,4) A ☐ Software ☐ Other (Specify) _____ </td> <td></td> </tr> <tr> <td> C. Exception Reports ☐ Conference Record ☐ Hot Line Report </td> <td></td> <td></td> <td></td> </tr> <tr> <td> D. Performance Measurement ☐ Management Control System Description ☐ WBS Dictionary ☐ Index ☐ Element Definition ☐ Cost Performance Reports ☐ Format 1 - WBS ☐ Format 2 - Function ☐ Format 3 - Baseline </td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		A. General Management	Frequency	E. Financial Incentives	Frequency	☐ Management Plan ☐ Status Report ☒ Summary Report (Monthly Cost by Task)	M	☐ Statement of Income and Expense ☐ Balance Sheet ☐ Cash Flow Statement ☐ Statement of Changes in Financial Position ☐ Loan Drawdown Report ☐ Operating Budget ☐ Supplementary Information		B. Schedule/Labor/Cost ☐ Milestone Schedule/Plan ☐ Labor Plan ☐ Facilities Capital Cost of Money Factors Computation ☐ Contract Facilities Capital and Cost of Money ☐ Cost Plan ☐ Milestone Schedule/Status ☐ Labor Management Report ☐ Cost Management Report		F. Technical ☐ Notice of Energy RD&D Project (Required with any of the following) ☒ Technical Progress Report (Mid-point of each Task) A ☐ Draft for Review ☐ Final for Approval ☒ Topical Report ☒ Final Technical Report (Tasks 1,2,3,4) F ☒ Draft for Review (Tasks 1,2,3,4) A ☐ Software ☐ Other (Specify) _____		C. Exception Reports ☐ Conference Record ☐ Hot Line Report				D. Performance Measurement ☐ Management Control System Description ☐ WBS Dictionary ☐ Index ☐ Element Definition ☐ Cost Performance Reports ☐ Format 1 - WBS ☐ Format 2 - Function ☐ Format 3 - Baseline			
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<p>7. PREPARED BY (SIGNATURE AND DATE)</p> <p>Andrea W. Campbell <i>Andrea W. Campbell</i> 6/3/93</p>		<p>8. REVIEWED BY (SIGNATURE AND DATE)</p> <p>Judith C. Stroud <i>Judith C. Stroud</i> 6/4/93</p>																			

CONTRACT NUMBER:

DE-AI05-930R22088

Management Plan
Milestone Schedule & Status Report
Cost Plan
Manpower Plan
Contract Management Summary Report
Project Status Report
Cost Management Report (Monthly by Task)
Manpower Management Plan
Conference Record
Plot Line Report
Notice of Energy R&D Project
Technical Progress Report Mid-point of ea. fas
Topical Report
Final Technical Report (Draft)
Final Technical Report

ADDRESSEES

NUMBER OF REPORT COPIES

SPECIAL INSTRUCTIONS

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